

TABLE 11-[SEQ FIGURE ١* ARABIC]
Geological Legend—Pebble Deposit Rock Types

Age/Type	Code	Rock Type	Pebble West Zone	Pebble East Zone
Quaternary	Fc	Ferricrete	✓	✗
	Ob	Overburden	✓	✗
Tertiary/Volcanic	TA	Andesite	✓	✓
	TB	Basalt	✓	✓
	TD	Dacite/latite	✓	✓
	TL	Latite	✗	✓
Tertiary/Sedimentary	TC	Conglomerate, heterolithic	✓	✓
	TF	Conglomerate, matrix dominant, angular pebbles, minor rounded cobbles	✓	✓
	TT	Siltstone	✗	✓
	TW	Wacke, sandstone	✓	✓
	TX	Volcaniclastic, dominated by angular fragments (>80%)	✗	✓
Tertiary/Other	TY	Mudstone/siltstone	✓	✓
	TM	No information in the NDM drill-core database (2007) regarding definition of this type	✗	✓
Pre-Tertiary/Plutonic	A	Quartz monzonite	✓	✗
	D	Diorite	✓	✓
	F	Felsite (latite)	✓	✗
	G	Granodiorite	✓	✓
	M	Monzonite	✓	✗
	N	Monzodiorite	✓	✗
	P	Porphyritic monzodiorite to granodiorite	✓	✓
	R	Gabbro	✓	✗
	U	Ultramafic rock—pyroxenite	✓	✗
	X	Igneous breccia	✓	✗
Pre-Tertiary/Volcano-sedimentary	K	Skarn	✓	✗
	W	Wacke, sandstone	✓	✓
Pre-Tertiary/Other	Y	Mudstone, siltstone	✓	✓
	Z	Fault-affected material—host lithology not indicated in the NDM Pebble Project Drill-Core database	✗	✓

Notes:

✓ = rock type documented as present in the geological materials logged as of May 1, 2007 in the NDM Pebble Project Drill-Core Database (NDM, 2007).

✗ = rock type not documented in the database as of May 1, 2007.

TABLE 11-[SEQ FIGURE * ARABIC]
Locations of Seep Sampling Points, Pebble Deposit Vicinity, 2006

Location Number ^a	Latitude	Longitude
SRK01	59.91388000	-155.28865999
SRK02	59.90054296	-155.31101326
SRK04	59.89990694	-155.31152188
SRK06	59.89895350	-155.28992280
SRK08	59.89985154	-155.29206396
SRK09	59.90428674	-155.29321731
SRK10	59.90544445	-155.29339870
SRK11	59.90470114	-155.29144999
SRK12	59.90465169	-155.29048204
SRK13	59.90537622	-155.29033402
SRK15	59.90604158	-155.28886065
SRK17	59.90984218	-155.29004401
SRK18	59.89244110	-155.30304275
SRK19	59.89331223	-155.30436155
SRKST6	59.89914436	-155.29003948

Note:

a. Locations identified as suitable for future surface-water sampling.

TABLE 11-[SEQ FIGURE ١* ARABIC]

Summary of Selection of Lower Grade (Copper Equivalent <0.6%) Samples for Acid-base Accounting Tests—Pre-Tertiary, Pebble East Zone

Rock Type	Subtype	Number of interval s	Estimated Volumetric Proportion ^a	Target Number of Samples to Select ^b	Adjusted Target Number of Samples ^c	Actual Number of Samples Studied ^d
Diorite (D)		11	0.004	1	5	6
Granodiorite (G)						
G (no subtype indicated)		219	0.082	15	14	13
G ^c (coarse grained: 2 to 5mm)		6	0.002	0	2	2
Gp (medium-coarse grained, in plutons)		621	0.231	42	39	36
Gpk (medium-coarse grained, in plutons with >2% K-feldspar phenocrysts)		69	0.026	5	5	5
Gs (fine-medium grained, in sills)		821	0.306	55	50	50
Gs-Y (fine-medium grained, 3-10% mudstone fragments)		5	0.002	0	0 ^e	0
Gs/D (intermediate in composition between Gs and D)		32	0.012	2	2	2
GZ (fault zone in granodiorite)		2	0.001	0	2	2
Porphyritic monzodiorite to granodiorite (P)		62	0.023	4	5	1
Wacke (W)		74	0.028	5	5	5
Mudstone (Y)						
Y (no subtype indicated)		581	0.217	39	36	34
Y/W (contact between two units Y and W)		6	0.002	0	0 ^e	0
Y0 (the "0" modifier denotes mudstone located between two specifically designated sills of diorite [D])		12	0.004	1	2	2
Y2L (the "2" modifier has same explanation as for "0" above; the "L" denotes that the sample was located in the lower part of that interval)		122	0.045	8	8	8
YW (mudstone containing 20 to 50% wacke)		2	0.001	0	0 ^e	0
Fault zone (Z)		37	0.014	2	5	5
TOTALS		2,683	1.0	180	180	171

Notes:

- a. Volumetric proportions were based on the number of intervals involving each type in the NDM Pebble Project Drill-Core Database as of May 1, 2007 (NDM, 2007).
- b. The total number of samples (180) proportioned according to the volumetric proportion of each lithology or subtype of interest.
- c. The number of samples adjusted so that at least five samples were selected from each of the main lithologies, and at least two samples from each subtype.
- d. Not all the samples selected were available within the stored sample materials. For diorite, an extra sample was included at a later date to allow for the fact that insufficient mass of the original samples remained to undertake a humidity cell test.
- e. These subtypes involved intervals that comprised more than one lithology. The individual lithologies were already represented in the sample selection methodology, and further samples were considered unnecessary.

mm = millimeter(s).

TABLE 11-[SEQ FIGURE ١* ARABIC]

Summary of Selection of Higher Grade (Copper Equivalent $\geq 0.6\%$) Samples for Acid-base Accounting Tests—Pre-Tertiary, Pebble East Zone

Rock Type	Subtype	Number of intervals	Estimated Volumetric Proportion ^a	Target Number of Samples to Select ^b	Adjusted Target Number of Samples to Select ^c	Actual Number of Samples Studied ^d
Diorite (D)		67	0.011	0	2	2
Granodiorite (G)						
G (no subtype indicated)		763	0.131	3	2	1
G ^c (coarse grained: 2 to 5mm)		5	0.001	0	0 ^e	0
Gp (med-coarse grained, in plutons)		1,956	0.335	7	5	5
Gpk (med- coarse grained, >2% K-feldspar phenocrysts)		33	0.006	0	0 ^e	0
Gs (fine-medium grain, in sills)		1,172	0.201	4	3	2
Gs-Y (fine-medium grain, three 10% fragments comprising mudstone)		31	0.005	0	0 ^e	0
Gs/D (intermediate in composition between Gs and D)		2	0.000	0	0 ^e	0
GZ (fault zone in granodiorite)		1	0.000	0	0 ^e	0
G.Y (10-30% interval comprises mudstone)		4	0.001	0	0 ^e	0
GpZ (fault zone in Gp?) ^f		11	0.002	0	0 ^e	0
Porphyritic monzodiorite to granodiorite (P)		0	0.000	0	0 ^e	0
Wacke (W)		138	0.024	0	2	2
Mudstone (Y)						
Y (no subtype indicated)		1,509	0.259	5	4	5
Y/W (contact between two units Y and W)		49	0.008	0	0 ^e	0
Y0 (the “0” modifier denotes mudstone located between two specifically designated sills of diorite [D])		1	0.000	0	0 ^e	0
Y2L (the “2” modifier has same explanation as for “0” above; the “L” denotes that the sample was located in the lower part of that interval)		20	0.003	0	0 ^e	0
YW (mudstone with 20 to 50% wacke)		10	0.002	0	0 ^e	0
Fault zone (Z)		62	0.011	0	2	2
TOTALS		5,835	1.0	20	20	19

Notes:

- a. Volumetric proportions were based on the number of intervals involving each type in the NDM Pebble Project Drill-Core Database as of May 1, 2007 (NDM, 2007).
- b. The total number of samples (20) proportioned according to the volumetric proportion of each lithology or subtype of interest.
- c. The number of samples was adjusted so that at least two samples were selected from each of the main lithologies and/or subtypes.
- d. Not all the samples selected were available within the stored sample materials. Also, in the case of mudstone (no subtype indicated) lithology, an extra sample was included at a later date to allow for the fact that insufficient mass of the original samples remained to undertake a humidity cell test.
- e. These subtypes either involved intervals that comprised more than one lithology, or intervals that were volumetrically insignificant.
- f. Question mark (?) denotes uncertainty in identification.

mm = millimeter(s).

TABLE 11-[SEQ FIGURE ١* ARABIC]
Summary of Sample Selection for Acid-base Accounting Tests—Tertiary, Pebble East Zone

Rock Type ^a	Number of Intervals ^b	Estimated Volumetric Proportion ^c	Target Number of Samples to Select ^d	Adjusted Target Number of Samples to Select ^e	Actual Number of Samples Studied ^f
Low S (S% < 1.0)					
TA+TB ^f	1,453	0.38	69	65	63
TC	802	0.21	38	37	35
TD	235	0.06	11	11	10
TF	454	0.12	22	21	20
TL	1	0.00	0	0 ^g	0
TM	35	0.01	2	5	5
TT	28	0.01	1	5	5
TW	383	0.10	18	17	16
TX	143	0.04	7	7	7
TY	255	0.07	12	12	12
TOTALS	3,789	1.00	180	180	173
High S (S% ≥ 1.0)					
TA+TB ^f	116	0.59	11	11	11
TC	27	0.14	3	3	3
TD	13	0.07	1	1	1
TF	25	0.13	3	3	3
TL	0	0.00	0	0	0
TM	0	0.00	0	0	0
TT	0	0.00	0	0	0
TW	6	0.03	1	1	1
TX	2	0.01	0	0	0
TY	7	0.04	1	1	1
TOTALS	196	1.00	20	20	20

Notes:

- a. See Table 11-1.
- b. Data in this column refer to all cored intervals (i.e., includes intervals comprising more than one lithology).
- c. Volumetric proportions were based on the number of intervals involving each type in the NDM Pebble Project Drill-Core Database as of May 1, 2007 (NDM, 2007).
- d. The total number of samples (200) proportioned according to the volumetric proportion of each lithology or subtype of interest.
- e. Low S materials only. The number of samples adjusted so that at least five samples were selected from each of the main lithologies.
- f. Not all the samples selected were available within the stored sample materials.
- g. TA and TB could not be reliably differentiated in hand specimen and so were treated as one rock type.
- h. Latite (TL) was present in only one cored interval overall and was considered volumetrically insignificant and ignored.

S = sulfur.

TABLE 11-[SEQ FIGURE ١* ARABIC]
Overburden Materials from 2007 Sampling, Pebble East Zone

Composite Sample ID	Samples Used to Make the Composites	Sample Depth (feet)	Sample Description ^a
GH07-104 SRK COMP #1	GH07-104 SRK SPT #1	5 - 7	Gravelly SAND, some silt. Well graded, clasts subrounded to angular. Light brown, damp to moist.
	GH07-104 SRK SPT #2	10 - 12	
	GH07-104 SRK SPT #3	15 - 17	
GH07-104 SRK COMP #2	GH07-104 SRK SPT #4	23 - 25	SILT and SAND, some gravel. Well graded, clasts rounded to subangular. Brown, moist to wet.
	GH07-104 SRK SPT #5	28 - 30	
GH07-104 SRK COMP #3	GH07-104 SRK SPT #6	33 - 35	Gravelly SILT and CLAY, trace sand. Gap graded, clasts rounded to subangular. Gray, wet. Moisture content decreasing with depth. Gravel content decreasing with depth.
	GH07-104 SRK SPT #7	38 - 40	
	GH07-104 SRK SPT #8	43 - 45	
GH07-104 SRK COMP #4	GH07-104 SRK SPT #9	48 - 50	SILT and CLAY, trace sand. Poorly graded, gray, damp.
GH07-104 SRK COMP #5	GH07-104 SRK SPT #10	53 - 55	Sandy SILT, occasional cobbles. Poorly graded, mix of gray and brown, moist.
	GH07-104 SRK SPT #11	65 - 67	
GH07-104 SRK COMP #6	GH07-104 SRK SPT #12	75 - 77	SAND. Poorly graded, light brown to light gray, moist.
GH07-104 SRK COMP #7	GH07-104 SRK SPT #14	100 - 102	Gravelly, silty SAND, occasional cobbles. Well graded, clasts subrounded. Light brown, moist. Trace hematite on cobbles.
GH07-104 SRK COMP #8	GH07-104 SRK SPT #15	110 - 112	SILT and CLAY, some gravel, trace sand. Poorly to gap graded, clasts subrounded to subangular. Light gray, moist. Sand and gravel content increasing with depth.
	GH07-104 SRK SPT #16	120 - 122	
GH07-104 SRK COMP #9	GH07-104 SRK SPT #17	135 - 137	Gravelly SILT and CLAY, some sand. Well graded, clasts rounded to subrounded up to gravel size. Gray, wet.
GH07-104 SRK COMP #10	GH07-104 SRK SPT #18	145 - 147	Sandy SILT and CLAY. Poorly graded, brown-gray mix. Moist to wet.
	GH07-104 SRK SPT #19	155 - 157	
GH07-104 SRK COMP #11	GH07-104 SRK SPT #20	170 - 172	Gravelly SAND, some silt, frequent cobbles and boulders. Well graded, clasts rounded to subrounded. Light brown, moist to wet
GH07-104 SRK COMP #12	GH07-104 SRK SPT #21	180 - 182	BEDROCK. Rhyollite, cream white, heavily weathered. Clay, chlorite, and calcite fracture infilling.
GH07-105 SRK COMP #1	GH07-105 SRK SPT #1	5 - 7	Silty SAND, some gravel. Well graded, clasts subangular to rounded. Brown,
	GH07-105 SRK SPT #2	10 - 12	

Composite Sample ID	Samples Used to Make the Composites	Sample Depth (feet)	Sample Description ^a
	GH07-105 SRK SPT #3 GH07-105 SRK SPT #4 GH07-105 SRK SPT #5 GH07-105 SRK SPT #6 GH07-105 SRK SPT #7	15 - 17 20 - 22 25 - 27 30 - 32 35 - 37	dry to damp. Gravel content increasing with depth, and silt content decreasing with depth. Moist to wet, mix of browns and grays 15 to 37 feet.
GH07-105 SRK COMP #2	GH07-105 SRK SPT #8 GH07-105 SRK SPT #9 GH07-105 SRK SPT #10 GH07-105 SRK SPT #11	40 - 42 45 - 47 50 - 52 65 - 67	SAND, some silt, trace gravel. Poorly to well graded, clasts subrounded. Dark brown, moist to wet. Silt content increasing 38 to 44 feet. SILT and SAND, trace gravel. Gravel content increasing 45 to 50 feet. SILT and SAND, some gravel.
GH07-105 SRK COMP #3	GH07-105 SRK SPT #12	75 - 77	Gravelly SILT and CLAY, some sand. Gap graded, clasts subangular. Gray, moist to wet.
GH07-105 SRK COMP #4	GH07-105 SRK SPT #13	85 - 87	SILT and CLAY. Poorly graded. Gray, damp to moist.
GH07-105 SRK COMP #5	GH07-105 SRK SPT #14	100 - 102	Gravelly SILT and CLAY, some sand. Gap graded, clasts subrounded. Light gray, moist.
GH07-105 SRK COMP #6	GH07-105 SRK SPT #15	115 - 117	Gravelly SILT and CLAY, some sand, frequent cobbles and boulders. Well graded, clasts subrounded to subangular. Gray, moist.
GH07-105 SRK COMP #7	GH07-105 SRK SPT #16	125 - 127	Gravelly SILT and CLAY. Gap graded, clasts subrounded up to medium gravel size. Light brown, moist.
GH07-105 SRK COMP #8	GH07-105 SRK SPT #17 GH07-105 SRK SPT #18 GH07-105 SRK SPT #19	135 - 136 145 - 146 155 - 156	Silty, sandy GRAVEL, numerous cobbles. Well graded, clasts rounded to subrounded. Light brown, wet. (BEDROCK at 159 feet.)
GH07-106 SRK COMP #1	GH07-106 SRK SPT #1	5 - 7	Organic SILT and CLAY, frequent roots. Poorly graded, mix of light and dark browns. Wet to saturated. Root content decreasing with depth up to 5 feet.
GH07-106 SRK COMP #2	GH07-106 SRK SPT #2	10 - 12	Gravelly SAND, some silt, frequent cobbles. Well graded. Clasts angular. Light brown throughout, saturated. Clasts subrounded, wet.
GH07-106 SRK COMP #3	GH07-106 SRK SPT #3 GH07-106 SRK SPT #4	15 - 17 20 - 22	SILT and CLAY, some sand. Poorly graded, light brown, damp to moist.
GH07-106 SRK COMP #4	GH07-106 SRK SPT #5 GH07-106 SRK SPT #6	25 - 27 30 - 32	SILT and CLAY, some gravel, isolated cobbles. Gap graded, clasts subrounded. Light brown, moist. Gravel content increasing with depth.
GH07-106 SRK COMP #5	GH07-106 SRK SPT #7	35 - 37	

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Composite Sample ID	Samples Used to Make the Composites	Sample Depth (feet)	Sample Description ^a
	GH07-106 SRK SPT #8 GH07-106 SRK SPT #9	40 - 42 47 - 49	SILT and CLAY, some sand, some gravel. Poorly graded, clasts subrounded to rounded. Light brown, moist. Sand content increasing with depth.
GH07-106 SRK COMP #6	GH07-106 SRK SPT #10 GH07-106 SRK SPT #11 GH07-106 SRK SPT #12	55 - 57 65 - 67 75 - 76	SILT and CLAY, some gravel, occasional boulders and cobbles. Gap graded, clasts subrounded. Light brown, moist. Gravel content increasing 50 to 56 feet. Frequent cobbles 60 to 65 feet.
GH07-106 SRK COMP #7	GH07-106 SRK SPT #13 GH07-106 SRK SPT #14 GH07-106 SRK SPT #15	85 - 86 95 - 96 105 - 106	Sandy, gravelly SILT and CLAY. Well graded, clasts subrounded. Light brown, moist to wet. Gravel content increasing to 83 feet. Clay and silt content decreasing with depth. Cobbles. Contact with BEDROCK at 106 feet. (Rhyollite, cream white, fine-grained. Heavily fractured and weathered with hematite buildup on fracture surfaces and clay infilling.)

Notes:

a. Capitalization denotes the main material types present.

TABLE 11-[SEQ FIGURE * ARABIC]
Number of Samples Selected for Shake-flask Extractions,
Pebble West Zone

pH Group	Available Samples	Target Number	Actual Number
1	39	10	11
2	72	10	11
3	214	5	4
4	51	5	6

TABLE 11-[SEQ FIGURE * ARABIC]

Parameters Analyzed in Leachates from Meteoric Water Mobility Procedures, Net Acid Generation Tests, Shake-flask Extractions, and Humidity Cell Tests

Parameter ^b	Units	Method Detection Limit ^a			
		MWMP	NAG	SFE	HCT
pH		0.01	0.01	0.01	0.01
Conductivity	µmhos/cm	1	1	1	1
ORP	mV	1	1	1	1
Acidity	mg CaCO ₃ /L	1	1	1	1
Alkalinity	mg CaCO ₃ /L	1	1	1	1
TDS	mg/L	10	10	10	10
Hardness	mg CaCO ₃ /L	0.5	0.5	0.5	0.5
Cl	mg/L	0.5	0.5	0.5	0.5
F	mg/L	0.02	0.02	0.02	0.02
Sulfate	mg/L	0.5	0.5	0.5	0.5
Al	mg/L	0.001	0.001	0.001	0.001
Sb	mg/L	0.00005	0.00005	0.00005	0.00005
As	mg/L	0.0001	0.0001	0.0001	0.0001
Ba	mg/L	0.00005	0.00005	0.00005	0.00005
Be	mg/L	0.0002	0.0002	0.0002	0.0002
Bi	mg/L	0.0005	0.0005	0.0005	0.0005
B	mg/L	0.01	0.01	0.01	0.01
Cd	mg/L	0.00005	0.00005	0.00005	0.00005
Ca	mg/L	0.05	0.05	0.05	0.05
Cr	mg/L	0.0005	0.0005	0.0005	0.0005
Co	mg/L	0.0001	0.0001	0.0001	0.0001
Cu	mg/L	0.0001	0.0001	0.0001	0.0001
Fe	mg/L	0.03	0.03	0.03	0.03
Pb	mg/L	0.00005	0.00005	0.00005	0.00005
Mg	mg/L	0.005	0.005	0.005	0.005
Mn	mg/L	0.00005	0.00005	0.00005	0.00005
Hg	mg/L	0.00001	0.00001	0.00001	0.00001
Mo	mg/L	0.00005	0.00005	0.00005	0.00005
Ni	mg/L	0.0005	0.0005	0.0005	0.0005
K	mg/L	0.05	0.05	0.05	0.05
Se	mg/L	0.001	0.001	0.001	0.001
Si	mg/L	0.05	0.05	0.05	0.05
Ag	mg/L	0.00001	0.00001	0.00001	0.00001
Na	mg/L	2	2	2	2
Tl	mg/L	0.00005	0.00005	0.00005	0.00005
Sn	mg/L	0.0001	0.0001	0.0001	0.0001

Parameter^b	Units	Method Detection Limit^a			
		MWMP	NAG	SFE	HCT
V	mg/L	0.0005	0.0005	0.0005	0.0005
Zn	mg/L	0.001	0.001	0.001	0.001

Notes:

a. Detection limit may decrease for metals because of dilution of samples to eliminate matrix interference.

b. For chemical abbreviations see Appendix D of this environmental baseline document.

CaCO₃ = calcium carbonate.

cm = centimeter.

HCT = kinetic (humidity cell) test.

L = liter.

µmhos = micromhos.

mg = milligram(s).

mV = millivolt(s).

MWMP = Meteoric Water Mobility Procedures.

NAG = net acid generation.

ORP = oxidation reduction potential.

SFE = shake-flask extraction.

TDS = total dissolved solids.

TABLE 11-[SEQ FIGURE ١* ARABIC]**Sample Selection Matrix for Humidity Cell Tests, Pebble West Zone**

		Year(s) Core Was Drilled								
		1. 1989-1992			2. 1997			3. 2002-2003		
		Range of Sulfur as Sulfide Concentration in Each Core Year Range (%)								
Rock Type		i.	ii.	iii.	i.	ii.	iii.	i.	ii.	iii.
Tertiary Cover	Sediments	<1.5	1.5 to 2.5	>2.5	<1.5	1.5 to 2.5	>2.5	<1.5	1.5 to 2.5	>2.5
	Volcano-sedimentary Units	2 tests								
Tertiary Intrusions	Basalt Dykes	2 tests								
Pre-Tertiary Intrusions	A. Plutonic Rocks ^a	1Ai	1Aii	1Aiii	2Ai	2Aii	2Aiii	3Ai	3Aii	3Aiii
	B. Sedimentary and Volcano-sedimentary Units	1Bi	1Bii	1Biii	NS ^b	2Bii	2Biii	3Bi	3Bii	3Biii

Notes:

- a. Designation of samples in Table 11-10, column titled Reason. For example, 2Aii indicates that one sample of plutonic rock (A) was selected from core collected in 1997 (2) containing 1.5 to 2.5% sulfur as sulfide (ii). For each cell in this matrix one sample was collected.
- b. Data set contained only one sample. No test.

TABLE 11-[SEQ FIGURE * ARABIC]

Samples Selected for Humidity Cell Kinetic Tests, Pebble West Zone

Sample ID	Reason ^a	Rock Type ^b	Acid-base Accounting Results									
			pH	Sulfur (S%)	Sulfate (S%)	Sulfide (S%)	NP (kg CaCO ₃ /t)	TIC (C%)	TIC kg CaCO ₃ /t	AP (kg CaCO ₃ /t)	NNP (kg CaCO ₃ /t)	NP/AP
115-0054-0066		TC	7.9	0.25	0.05	0.20	29.0	1.06	88.3	6.3	22.8	4.64
115-0054-0066	Trip 1	TC	7.9	0.25	0.05	0.20	29.0	1.06	88.3	6.3	22.8	4.64
115-0054-0066	Trip 2	TC	7.9	0.25	0.05	0.20	29.0	1.06	88.3	6.3	22.8	4.64
115-0142-0163		TC (higher S)	7.4	0.60	0.30	0.30	41.4	0.98	81.7	9.4	32.0	4.41
117-1055-1071		TB (low S)	8.2	0.26	0.01	0.25	108.5	1.48	123.3	7.8	100.7	13.89
3102-0958-0978		TB	8.7	0.69	0.01	0.68	103.3	1.06	88.3	21.3	82.0	4.86
3102-0958-0978	Trip 1	TB	8.7	0.69	0.01	0.68	103.3	1.06	88.3	21.3	82.0	4.86
3102-0958-0978	Trip 2	TB	8.7	0.69	0.01	0.68	103.3	1.06	88.3	21.3	82.0	4.86
3129-0253-0272		TC	9.1	0.11	0.01	0.10	83.8	1.04	86.7	3.1	80.6	26.80
3129-0417-0435		TC	8.5	0.03	0.01	0.02	98.5	1.53	127.5	0.6	97.9	157.60
4157-439-471		TF	7.4	3.8	0.06	3.74	21.9	1.40	324.1	116.9	-95.0	0.19
4292-415-430		TA/TD	8.0	0.88	0.01	0.87	17.2	0.33	74.1	27.2	-10.0	0.63
4292-685-695		TC	8.1	2.53	0.12	2.41	83.7	0.90	78.6	75.3	8.4	1.11
025-0617-0637	1Aiii	D	5.0	3.56	0.19	3.37	9.8	0.88	73.3	105.3	-95.6	0.09
046-0113-0133	1Aii	N	7.2	1.73	0.02	1.71	6.1	0.30	25.0	53.4	-47.4	0.11
046-0580-0600	1Ai	G	8.0	1.45	0.01	1.44	8.0	0.31	25.8	45.0	-37.0	0.18
112-0460-0480	2Aiii	X	6.7	2.98	0.05	2.93	5.6	0.12	10.0	91.6	-85.9	0.06
117-0190-0210	2Aii	N	7.5	1.90	0.04	1.86	5.6	0.45	37.5	58.1	-52.5	0.10
118-0468-0488	2Ai	M	8.4	1.19	0.02	1.17	37.5	1.31	109.2	36.6	0.9	1.03
3069-0927-0947	3Aii	G	6.5	2.48	0.04	2.44	3.2	0.08	6.7	76.3	-73.1	0.04
3123-0438-0458	3Aiii	D	8.7	4.88	<0.01	4.88	41.8	0.51	42.5	152.5	-110.8	0.27
3124-0872-0887	3Ai	X	8.4	1.47	0.05	1.42	45.5	0.60	50.0	44.4	1.1	1.03
019-0072-0090	1Bi	WY	6.9	0.78	0.38	0.40	0.4	0.01	0.8	12.5	-12.1	0.04
033-0137-0155	1Bii	Y	8.4	2.21	0.02	2.19	26.5	0.34	28.3	68.4	-41.9	0.39
047-0350-0365	1Biii	WY	6.8	3.43	0.08	3.35	6.1	0.35	29.2	104.7	-98.6	0.06
118-0520-0535	2Biii	Y	7.0	3.10	0.14	2.96	30.9	0.52	43.3	92.5	-61.6	0.33
118-1220-1238	2Bii	WY	7.7	2.59	0.11	2.48	32.6	0.45	37.5	77.5	-44.9	0.42
3102-0568-0588	3Biii	Y	7.9	3.23	0.10	3.13	18.5	0.29	24.2	97.8	-79.3	0.19
3115-0988-1008	3Bi	Y	8.5	1.49	0.01	1.48	10.0	0.11	9.2	46.3	-36.3	0.22
3124-0188-0209	3Bii	Y	6.1	2.49	0.02	2.47	0.1	0.01	0.8	77.2	-77.1	0.00

Sample ID	Reason ^b	Rock Type ^c	Metal Assay Results ^a																		
			Ag (mg/kg)	Al (%)	As (mg/kg)	B (mg/kg)	Ba (mg/kg)	Be (mg/kg)	Bi (mg/kg)	Ca (%)	Cd (mg/kg)	Ce (mg/kg)	Co (mg/kg)	Cr (mg/kg)	Cs (mg/kg)	Cu (mg/kg)	Fe (%)	Ga (mg/kg)	Ge (mg/kg)	Hf (mg/kg)	Hg (mg/kg)
115-0054-0066		TC	0.11	1.67	25.6	<10	240	0.85	0.14	1.8	0.22	24.9	25.1	36	1.9	66	3.98	4.4	0.08	0.08	0.15
115-0054-0066	Trip 1	TC	0.11	1.67	25.6	<10	240	0.85	0.14	1.8	0.22	24.9	25.1	36	1.9	66	3.98	4.4	0.08	0.08	0.15
115-0054-0066	Trip 2	TC	0.11	1.67	25.6	<10	240	0.85	0.14	1.8	0.22	24.9	25.1	36	1.9	66	3.98	4.4	0.08	0.08	0.15
115-0142-0163		TC (higher S)	0.21	1.56	46.8	10	500	0.94	0.66	2.4 3	0.26	30.8	20.5	12	1.4	106.5	3.49	3.7	0.08	0.10	0.24
117-1055-1071		TB (low S)	0.26	2.43	30.9	10	60	0.58	0.05	4.7 6	0.09	16.8	19.6	82	1.14	535	2.65	5.5	0.06	0.14	0.05
3102-0958-0978		TB	0.92	4.86	153	<10	60	0.59	0.82	4.9 3	0.98	19.8	24.3	65	1.67	1,190	5.65	11.15	0.16	0.31	0.05
3102-0958-0978	Trip 1	TB	0.92	4.86	153	<10	60	0.59	0.82	4.9 3	0.98	19.8	24.3	65	1.67	1,190	5.65	11.15	0.16	0.31	0.05
3102-0958-0978	Trip 2	TB	0.92	4.86	153	<10	60	0.59	0.82	4.9 3	0.98	19.8	24.3	65	1.67	1,190	5.65	11.15	0.16	0.31	0.05
3129-0253-0272		TC)	0.09	3.41	15.4	<10	70	0.58	0.04	3.4	0.21	29	30.0	83	1.6	34.5	5.51	10.9	0.10	0.22	0.07
3129-0417-0435		TC)	0.07	2.64	5.7	<10	300	0.8	0.04	3.8 1	0.14	41.8	26.4	114	6.7	139.5	4.44	7.2	0.08	0.10	0.01
4157-439-471		TF	1.57	0.83	102	10	50	0.71	0.8	1.2 8	0.07	5.03	11.4	113	1.28	1,075	18.6	4.6	0.18	0.33	0.07
4292-415-430		TA/TD	0.44	3.43	73.1	<10	110	0.32	0.21	1.2 4	0.38	6.09	8.6	152	6.77	960	12.9 5	30.4	0.21	0.03	0.33
4292-685-695		TC	0.16	2.71	165	<10	110	0.74	0.04	3.6 6	0.2	53.5	26	60	3.13	62.1	7.87	10.6	0.11	0.13	0.07
025-0617-0637	1A <i>iii</i>	D	3.18	1.28	880	<10	50	0.79	0.28	0.5 6	0.21	35.4	31.9	120	3.25	5,310	7.3	5.79	0.2	0.23	0.88
046-0113-0133	1A <i>ii</i>	N	1.31	1.27	33.3	<10	40	0.4	0.22	0.2 7	0.37	36	21.3	128	1.25	3,360	4.41	6.49	0.17	0.12	0.19
046-0580-0600	1A <i>i</i>	G	1.05	0.83	13.2	<10	60	0.4	0.17	0.2 7	0.05	24.6	16.4	160	0.79	2,440	3.31	4.49	0.1	0.16	0.04
112-0460-0480	2A <i>iii</i>	X	1.6	1.08	121.5	<10	30	0.56	0.28	0.2 8	0.12	24	21	124	1.37	3,280	4.51	6.4	0.16	0.19	0.09
117-0190-0210	2A <i>ii</i>	N	1.29	1.08	54.1	<10	30	0.37	0.26	0.3 1	0.19	29.1	23.9	134	1	2,840	5.71	5.27	0.18	0.08	0.06
118-0468-0488	2A <i>i</i>	M	1.36	1.34	28	<10	60	0.44	0.18	1.4 3	0.02	22.1	17.8	226	3.73	3,410	5.46	4.2	0.13	0.18	0.04
3069-0927-0947	3A <i>ii</i>	G	1.12	0.77	59	<10	30	0.46	0.62	0.2 1	0.25	12.15	13.8	141	1.82	2,230	3.08	2.27	0.08	0.09	0.13
3123-0438-0458	3A <i>iii</i>	D	0.67	2.42	48.1	<10	60	0.48	0.42	1.2 7	0.03	28.3	35	264	3.18	1,735	7.41	10.7	0.27	0.19	0.1
3124-0872-0887	3A <i>i</i>	X	1.35	2.74	28.5	<10	40	0.55	0.14	2.2 3	0.78	20.4	14.2	152	2.2	899	4.12	7.59	0.12	0.27	0.11
019-0072-0090	1B <i>i</i>	WY	1.38	1.55	13.6	<10	60	0.29	0.28	0.0 9	<0.01	22.4	8	126	1.46	1,210	4.75	8.85	0.16	0.09	0.03
033-0137-0155	1B <i>ii</i>	Y	1	1.45	47.7	<10	40	0.63	0.27	0.8	0.09	28.8	14.3	116	2.8	1,915	3.32	5.12	0.1	0.08	0.07
047-0350-0365	1B <i>iii</i>	WY	1.82	1.75	62.9	<10	30	0.58	0.3	0.5 3	0.57	21.5	35.8	134	2.24	5,200	6.66	7.16	0.24	0.08	0.09

GEOCHEMICAL CHARACTERIZATION—BRISTOL BAY DRAINAGES

118-0520-0535	2Biii	Y	2.29	0.81	784	<10	30	0.44	0.26	0.9	0.53	16.55	24.9	142	1.6	4,420	4.64	4.36	0.13	0.12	0.94
118-1220-1238	2Bii	WY	3.68	1.57	113.5	<10	70	0.5	4.56	1.1 1	8.28	22.2	15.6	170	2.03	2,720	4.83	8.73	0.13	0.06	0.32
3102-0568-0588	3Biii	Y	1.03	1.38	138.5	<10	30	0.65	0.44	0.6 4	0.23	13.1	16.4	176	1.98	1,765	4.3	6.23	0.12	0.09	0.15
3115-0988-1008	3Bi	Y	1.41	1.21	16.2	<10	30	0.48	0.22	0.3 8	<0.01	12.5	14.5	178	3.07	2,930	3.17	4.58	0.09	0.05	0.06
3124-0188-0209	3Bii	Y	2.73	1.91	17.9	<10	50	0.36	0.66	0.1 5	0.12	27	27.9	175	1.6	3,140	4.2	7.48	0.17	0.12	0.14

Metal Assay Results ^a

Sample ID	Reason ^b	Rock Type ^c	In (mg/kg)	K (%)	La (mg/kg)	Li (mg/kg)	Mg (%)	Mn (mg/kg)	Mo (mg/kg)	Na (%)	Nb (mg/kg)	Ni (mg/kg)	P (mg/kg)	Pb (mg/kg)	Rb (mg/kg)	Re (mg/kg)	S (%)	Sb (mg/kg)	Sc (mg/kg)	Se (mg/kg)
115-0054-0066		TC	0.046	0.13	9.9	5.6	1.03	808	2.91	0.05	<0.05	21.2	850	9.2	7.7	0.002	0.22	0.41	9.9	0.6
115-0054-0066	Trip 1	TC	0.046	0.13	9.9	5.6	1.03	808	2.91	0.05	<0.05	21.2	850	9.2	7.7	0.002	0.22	0.41	9.9	0.6
115-0054-0066	Trip 2	TC	0.046	0.13	9.9	5.6	1.03	808	2.91	0.05	<0.05	21.2	850	9.2	7.7	0.002	0.22	0.41	9.9	0.6
115-0142-0163		TC (higher S)	0.066	0.08	12.2	5	0.61	662	1.79	0.22	<0.05	8.9	890	16.4	4.4	0.002	0.62	0.48	8.8	2.3
117-1055-1071		TB (low S)	0.032	0.15	7.4	18.7	1.2	717	23.6	0.19	<0.05	18.3	770	2.8	8.6	0.031	0.3	0.83	11.4	0.9
3102-0958-0978		TB	0.091	0.34	8.7	10.6	2.48	925	25.9	0.66	<0.05	18.2	1,080	37.4	17.6	0.043	0.76	1.21	21.2	2.9
3102-0958-0978	Trip 1	TB	0.091	0.34	8.7	10.6	2.48	925	25.9	0.66	<0.05	18.2	1,080	37.4	17.6	0.043	0.76	1.21	21.2	2.9
3102-0958-0978	Trip 2	TB	0.091	0.34	8.7	10.6	2.48	925	25.9	0.66	<0.05	18.2	1,080	37.4	17.6	0.043	0.76	1.21	21.2	2.9
3129-0253-0272		TC	0.049	0.19	13.4	28.6	2.22	1,235	1.57	0.13	<0.05	15.2	890	5.7	12	0.001	0.11	0.52	14.8	0.4
3129-0417-0435		TC	0.040	0.24	14.3	18.1	1.42	905	1.54	0.06	<0.05	39.2	950	5.8	15.7	0.002	0.03	0.1	14.8	0.3
4157-439-471		TF	0.081	0.31	2.3	4.2	1.06	358	7.07	0.02	0.11	12.2	3,810	20.4	13.3	0.006	3.43	1.13	7.8	10.7
4292-415-430		TA/TD	0.287	0.22	2.6	17.8	0.96	398	23.4	0.05	0.09	14	4,950	15.2	16.4	0.037	0.9	0.8	11	4.5
4292-685-695		TC	0.058	0.23	25.2	7.8	0.91	839	3.18	0.06	0.05	3.6	2,220	21	7	0.003	2.58	0.68	9.5	0.7
025-0617-0637	1Aiii	D	0.047	0.92	17.6	14.2	1.44	909	196.5	0.03	0.44	25.7	2,170	12.3	54.6	0.595	3.8	41.9	16.1	11.6
046-0113-0133	1Aii	N	0.034	0.78	21.3	6.1	0.98	276	208	0.04	0.4	16.4	870	4.2	53.8	0.437	1.92	1.06	13.2	7.4
046-0580-0600	1Ai	G	0.025	0.55	15.4	5.7	0.61	241	100.5	0.05	0.29	9.1	680	1.8	31.6	0.172	1.5	0.59	4.9	4.7
112-0460-0480	2Aiii	X	0.051	0.75	13.8	4.8	0.8	715	179.5	0.04	0.3	16.2	880	6.1	49.6	0.391	3.41	4.93	10.1	9.4
117-0190-0210	2Aii	N	0.027	0.72	15.4	7	0.88	429	199.5	0.03	0.27	16.6	1,040	2.6	46.7	0.526	2.14	0.84	10.4	8.5
118-0468-0488	2Ai	M	0.035	0.33	12.5	8	1.1	602	523	0.11	0.07	16.4	580	2.4	19.3	0.701	1.26	1.15	7.3	5.3
3069-0927-0947	3Aii	G	0.029	0.4	6.1	1.7	0.22	434	124.5	0.01	<0.05	10.3	690	8.4	17.2	0.185	2.83	2.39	2.2	6.8
3123-0438-0458	3Aiii	D	0.017	1.99	14.8	20.5	2.64	270	60.6	0.07	0.21	64.5	1,660	4.1	131.5	0.112	5.27	0.89	19.2	16.4
3124-0872-0887	3Ai	X	0.033	0.72	10.2	25.7	1.34	570	53.6	0.17	0.07	21.7	1,170	20.2	47.1	0.089	1.62	2.86	16.6	3.5
019-0072-0090	1Bi	WY	0.041	0.94	10.7	6.1	0.92	216	264	0.05	0.11	14.9	1,180	2.8	56.2	0.096	0.78	0.69	16.2	9.3
033-0137-0155	1Bii	Y	0.015	0.82	13	4.3	1.06	719	117	0.03	0.06	35.4	870	3.8	46.9	0.19	2.48	0.4	6.1	3.8
047-0350-0365	1Biii	WY	0.038	0.98	10.5	10.6	1.16	618	120.5	0.04	0.42	16	2,080	14.8	63.1	0.256	3.86	4.51	12.8	15.6
118-0520-0535	2Biii	Y	0.045	0.63	8.3	5	0.9	547	182.5	0.03	0.21	33.9	730	12.8	37.1	0.417	3.67	46.9	12	8.9
118-1220-1238	2Bii	WY	0.156	1.1	12.5	11.7	1.42	301	246	0.04	0.49	38.8	1,020	51.9	71.7	0.36	3.04	6.99	18.4	6.8
3102-0568-0588	3Biii	Y	0.03	0.88	5.7	4.3	1.04	508	88.8	0.03	0.08	33.2	840	6.6	52.8	0.177	3.74	5.06	11.4	6.9
3115-0988-1008	3Bi	Y	0.022	0.72	5.8	6.7	0.88	296	144	0.04	0.16	31.8	750	1.8	43.8	0.25				

Sample ID	Reason ^b	Rock Type ^c	Metal Assay Results ^a												
			Sn (mg/kg)	Sr (mg/kg)	Ta (mg/kg)	Te (mg/kg)	Th (mg/kg)	Ti (%)	Tl (mg/kg)	U (mg/kg)	V (mg/kg)	W (mg/kg)	Y (mg/kg)	Zn (mg/kg)	Zr (mg/kg)
115-0054-0066		TC	0.7	283	0.01	0.02	2.9	<0.005	0.18	0.74	62	0.08	16.8	92	2.0
115-0054-0066	Trip 1	TC	0.7	283	0.01	0.02	2.9	<0.005	0.18	0.74	62	0.08	16.8	92	2.0
115-0054-0066	Trip 2	TC	0.7	283	0.01	0.02	2.9	<0.005	0.18	0.74	62	0.08	16.8	92	2.0
115-0142-0163		TC (higher S)	0.7	487	<0.01	0.3	3.7	<0.005	0.59	0.94	47	0.19	18.75	84	2.2
117-1055-1071		TB (low S)	0.4	651	<0.01	0.05	1.2	0.012	0.04	0.22	86	0.07	12.5	44	3.7
3102-0958-0978		TB	0.6	564	<0.01	0.13	0.8	0.233	0.21	0.27	212	0.14	16.1	192	8.3
3102-0958-0978	Trip 1	TB	0.6	564	<0.01	0.13	0.8	0.233	0.21	0.27	212	0.14	16.1	192	8.3
3102-0958-0978	Trip 2	TB	0.6	564	<0.01	0.13	0.8	0.233	0.21	0.27	212	0.14	16.1	192	8.3
3129-0253-0272		TC	0.8	334	0.01	0.02	1.9	0.032	0.22	1.16	144	0.08	18.7	91	4.8
3129-0417-0435		TC	0.7	339	0.01	<0.01	2.8	0.007	0.22	1.00	92	<0.05	16.6	86	2.0
4157-439-471		TF	1.1	172	<0.01	2.03	2.4	0.009	0.99	0.68	148	0.46	5.56	39	16.5
4292-415-430		TA/TD	2	105	<0.01	0.85	3.7	0.028	0.35	1.66	255	0.35	3.01	177	3
4292-685-695		TC	1.6	185	<0.01	0.01	2.8	0.021	0.09	0.65	89	0.09	25.1	120	3.9
025-0617-0637	1Aiii	D	1	150.5	<0.01	6.64	1.7	0.13	6.23	0.88	179	2.87	16.25	91	6.6
046-0113-0133	1Aii	N	0.8	21.5	<0.01	0.62	3	0.118	0.28	0.85	172	1.14	16.7	50	3.2
046-0580-0600	1Ai	G	0.5	71.4	<0.01	0.4	2.6	0.061	0.14	0.52	120	0.46	9.65	25	5.5
112-0460-0480	2Aiii	X	0.6	38.4	<0.01	0.84	1.9	0.106	0.62	0.69	130	0.51	9.24	41	5.8
117-0190-0210	2Aii	N	0.7	18.2	<0.01	0.46	2.4	0.094	0.27	0.54	170	0.64	13.65	40	2.2
118-0468-0488	2Ai	M	0.5	87.8	<0.01	0.2	1.7	0.038	0.15	0.44	113	0.28	8.55	38	5.1
3069-0927-0947	3Aii	G	0.4	15.6	<0.01	0.94	1.4	<0.005	0.49	0.33	37	0.38	4.46	57	3.3
3123-0438-0458	3Aiii	D	1.1	52.5	<0.01	0.56	1.7	0.221	0.62	0.92	215	0.85	13.4	28	5.4
3124-0872-0887	3Ai	X	0.6	162.5	<0.01	0.26	1.3	0.136	0.3	0.59	192	0.1	12.35	151	6.2
019-0072-0090	1Bi	WY	0.8	58.3	<0.01	0.4	3	0.147	0.31	0.58	214	0.45	3.42	21	2.7
033-0137-0155	1Bii	Y	0.4	20.3	<0.01	0.95	2.4	0.058	0.83	0.34	72	0.33	9.54	44	2.6
047-0350-0365	1Biii	WY	0.6	81.4	<0.01	0.69	1.6	0.166	0.35	0.74	154	1.32	19.6	82	1.9
118-0520-0535	2Biii	Y	0.6	38.8	<0.01	5.36	1.9	0.086	3.32	0.89	114	1.84	12	131	3.4
118-1220-1238	2Bii	WY	0.6	54.8	<0.01	1.35	1.5	0.218	0.3	1.07	225	1.3	13.25	1,315	1.5
3102-0568-0588	3Biii	Y	0.7	34.5	<0.01	0.57	1.9	0.089	1.77	0.46	118	0.48	8.27	69	3
3115-0988-1008	3Bi	Y	0.4	29.4	<0.01	0.31	2	0.085	0.28	0.44	108	0.42	7.79	17	1.1
3124-0188-0209	3Bii	Y	0.6	19	<0.01	1.15	2.9	0.152	0.54	1.06	206	0.3	10.25	32	3.1

Notes:

a. For chemical abbreviations see Appendix D of this environmental baseline document.

b. See Table 11-9.

c. See Table 11-1.

AP = acid potential.

CaCO₃/t = calcium carbonate per metric ton.

mg/kg = milligram(s) per kilogram.

NP = neutralization potential.

NNP = net neutralization potential (NP – AP).

S% = percent sulfur by weight

TIC = total inorganic carbon.

TABLE 11-[SEQ FIGURE * ARABIC]

**Simplification of Lithological Categories to Assist with Sample Selection for Humidity Cell Tests,
Pebble East Zone**

Symbol ^a	Rock Type	Simplified Category
Pre-Tertiary		
D	Diorite	Igneous
G	Granodiorite	Igneous
P	Porphyritic monzodiorite to granodiorite	Igneous
W	Wacke, sandstone	Sedimentary
Y	Mudstone, siltstone	Sedimentary
Z	"Fault"-affected material	Miscellaneous
Tertiary		
TA or TB	Andesite or basalt	Igneous
TD	Dacite	Igneous
TL	Latite	Igneous
TC	Volcano-sedimentary; conglomerate dominated by rounded fragments (<80%)	Sedimentary
TT	Volcano-sedimentary; siltstone	Sedimentary
TW	Volcano-sedimentary; sorted pebble conglomerate to sandstone	Sedimentary
TY	Volcano-sedimentary; mudstone	Sedimentary
TF	Volcaniclastic; matrix dominant with moderately abundant clasts	Volcaniclastic
TX	Volcaniclastic; dominated by angular fragments (>80%)	Volcaniclastic
TM	No information available in the database regarding definition of this type	Miscellaneous

Note:

a. See Table 11-1.

TABLE 11-[SEQ FIGURE * ARABIC]

Samples Selected for Humidity Cell Kinetic Tests, Pebble East Zone

Sample ID	Humidity Cell No.	Rock Type ^a	Acid-base Accounting Results									
			pH	Sulfur (S%)	Sulfate (S%)	Sulfide (S%)	NP (kg CaCO ₃ /t)	Carbon (C%)	CaCO ₃ NP (kg CaCO ₃ /t)	AP (kg CaCO ₃ /t)	NNP (kg CaCO ₃ /t)	NP/AP
222788	45	TA	8.34	2.54	0.02	2.52	20.9	0.51	43.2	78.8	-57.9	0.3
226785	49	TB	7.98	0.17	<0.01	0.17	69.8	0.62	52.3	5.3	64.5	13.1
104472	41	TC	7.8	1.15	0.03	1.12	8.1	<0.05	<4.5	35	-26.9	0.2
406558	53	TC	8.40	1.25	0.01	1.24	67.6	0.71	59.1	38.8	28.9	1.7
220394	55	TC	8.99	0.03	<0.01	0.03	103.8	1.12	93.2	0.9	102.9	110.7
104775	35	TD	9.3	0.03	<0.01	0.03	10.7	0.1	4.5	0.94	9.8	11.4
221502 ^b	68	TD	9.11	1.81	0.02	1.79	13.9	<0.05	<4.5	55.9	-42.0	0.2
219084	43	TF	8.2	1.49	0.02	1.47	77.9	0.6	50.0	45.9	32.0	1.7
406502	52	TF	8.87	0.08	<0.01	0.08	35.2	0.4	34.1	2.5	32.7	14.1
219135	34	TW	8.7	0.26	0.03	0.23	93.6	0.8	65.9	7.19	86.4	13.0
220364	39	TY	8.7	0.14	0.02	0.12	62.8	0.8	65.9	3.75	59.1	16.7
219189	56	TY	8.55	0.23	0.02	0.21	62.3	1.35	113.6	6.6	55.7	9.5
220366 ^b	69	TY	7.78	1.98	0.08	1.9	32.7	0.33	27.3	59.4	-26.7	0.6
224956	54	D	9.26	2.12	0.02	2.10	25.4		15.9	65.6	-40.2	0.4
224182	47	G	5.18	0.53	0.03	0.50	-0.1	<0.05	<4.5	15.6	-15.7	0.0
226293	51	G	8.91	0.61	0.03	0.58	36.9	0.4	34.1	18.1	18.8	2.0
406692	36	G	5.9	11.8	0.06	11.74	6.7	<0.05	<4.5	367	-360.2	0.0
225026	37	G	7.1	1.12	0.04	1.08	7.9	<0.05	<4.5	33.8	-25.9	0.2
105391	42	G	4.4	11.3	<0.01	11.3	-0.7	<0.05	<4.5	353	-353.8	0.0
105456	48	G	4.47	8.13	0.12	8.01	1.5	<0.05	<4.5	250.3	-248.8	0.0
220841 + 220842 ^c	38	Y				2.425						
220841	38 a	Y	4.0	2.62	0.12	2.5	-0.8	<0.05	<4.5	78.1	-78.9	0.0
220842	38 b	Y	7.47	2.38	0.03	2.35	3.0		<4.5	73.4	-70.4	0.0
406717	40	Y	3.9	9.91	0.14	9.77	4.4	<0.05	<4.5	305	-300.9	0.0
107326	44	Y	9.3	0.69	0.01	0.68	20.9	0.1	9.1	21.3	-0.3	1.0
107172	50	Y	8.02	1.11	0.03	1.08	-4.2	0.06	4.5	33.8	-38.0	-0.1
220076	46	Y	7.25	8.45	0.09	8.36	18.3	0.19	15.9	261.3	-243.0	0.1

Sample ID	Humidity Cell No.	Rock Type ^a	Metal Assay Results ^d																
			Ag (mg/kg)	Al (%)	As (mg/kg)	Au (gpt)	Ba (mg/kg)	Be (mg/kg)	Bi (mg/kg)	Ca (%)	Cd (mg/kg)	Ce (mg/kg)	Co (mg/kg)	Cr (mg/kg)	Cs (mg/kg)	Cu (mg/kg)	Fe (%)	Ga (mg/kg)	Ge (mg/kg)
222788	45	TA	0.5	5.67	170		300	5	10	2.01	5		20	10		130	6.07		
226785	49	TB	0.07	9.3	4.3		510	1.13	0.01	6.1	0.07	45.8	31.6	101	0.84	35.8	8.05	19.75	0.14
104472	41	TC	0.24	7.87	490		700	1.38	0.07	0.3	1.56	29.6	18.6	77	5.27	104.5	4.99	18.05	0.14
406558	53	TC	0.17	8.6	24.2		780	1.26	0.06	3.02	1	39.9	21.8	65	5.99	88.8	5.69	19.5	0.11
220394	55	TC	0.04	8.01	7		780	1.28	0.02	4.51	0.15	34.9	23.9	102	7.01	45.7	5.44	19.1	0.18
104775	35	TD	0.05	7.71	5.1		1,340	2.11	0.05	1.09	0.15	47.8	0.6	2	2.89	2	1.74	18.5	0.11
221502	68	TD	0.03	8.16	17		900	1.89	0.01	2	0.09	56.6	7.3	2	0.54	13.2	3.55	22.3	0.33
219084	43	TF	0.09	8.38	73.5		580	1.38	0.02	3.13	0.12	45	26.6	134	3.89	18.6	5.85	21.5	0.21
406502	52	TF	0.08	6.81	12.2		1010	1.49	0.15	1.41	0.11	35.4	6.9	18	2.88	11.5	2.46	15.65	0.09
219135	34	TW	0.04	8.33	39.2		850	0.95	0.09	4.4	0.12	51.1	33.5	69	2.23	83.6	7.27	20.9	0.19
220364	39	TY	0.09	7.65	20.9		500	1.52	0.16	2.68	0.19	30.2	18	138	6.38	39.3	4.62	18.3	0.16
219189	56	TY	0.03	7.9	37		810	1.48	1.82	2.48	0.36	41.7	20.9	65	5.8	41.4	4.77	21.2	0.16
220366	69	TY	0.12	8.34	43.3		950	1.96	0.81	1.39	0.22	30.6	21.2	152	7.17	65.2	5.67	20.1	0.18
224956	54	D																	
224182	47	G	0.5	2.22	60	0.023	200	5	10	0.025	5		5	20		3,310	0.76		
226293	51	G	0.5	9.73	50	0.158	700	5	10	1.62	5		5	10		1,500	1.61		
406692	36	G	0.5	3.5	25	0.238	200	5	10	0.27	5		30	10		340	11.25		
225026	37	G	0.5	7.07	25	0.145	500	5	10	0.29	5		10	10		1,400	3.63		
105391	42	G	1	4.18	50	0.259	230	5	10	0.08	5		40	10		1,870	10		
105456	48	G	1	4.1	90	0.164	270	5	10	0.05	5		40	40		460	7.13		
220841 + 220842 ^c	38	Y														18,050			
220841	38 a	Y	4	8.28	25	0.227	500	5	10	0.08	5		20	30		18,050	2.67		
220842	38 b	Y																	
406717	40	Y	0.5	5.18	25	0.169	230	5	10	0.32	5		60	70		640	8.86		
107326	44	Y	1	7.51	25	0.007	600	5	10	1.56	5		10	60		860	4.39		
107172	50	Y	2	6.13	25	0.034	600	5	10	0.43	5		20	60		4,510	2.64		
220076	46	Y	2	7.24	25	0.272	700	5	10	0.72	5		30	50		610	10.9		

Sample ID	Humidity Cell No.	Rock Type ^a	Metal Assay Results ^d																	
			Hf (mg/kg)	Hg (mg/kg)	In (mg/kg)	K (%)	Mg (%)	Mn (mg/kg)	Mo (mg/kg)	Na (%)	Nb (mg/kg)	Ni (mg/kg)	Pb (mg/kg)	Rb (mg/kg)	Re (mg/kg)	S (%)	Sb (mg/kg)	Se (mg/kg)	Sr (mg/kg)	Ta (mg/kg)
222788	45	TA				2.8	0.55	1,030	10	0.06	5	40			2.8	25		150		
226785	49	TB	2.2	0.005	0.063	0.24	2.19	1,530	0.62	2.04	16.3	53.8	6.7	3.1	0.001	0.19	0.35	0.5	576	0.19
104472	41	TC	1.5	0.08	0.057	2.6	1.38	907	5.73	0.1	6.9	33.3	7.7	140	0.001	1.19	7.59	4	163	0.48
406558	53	TC	2.9	0.01	0.053	2.01	1.49	1,115	1.59	0.44	10.9	25.5	115	84.3	0.001	1.34	3.32	8	549	0.76
220394	55	TC	2.4	0.005	0.06	1.2	1.85	1,620	0.65	2.25	11	41.9	10.4	48	0.002	0.01	1.08	2	902	0.36
104775	35	TD	5.1	0.05	0.073	3.44	0.2	796	2.46	2.91	13.9	0.3	19.4	99.8	0.002	0.04	1.98	3	600	1.96
221502	68	TD	2.6	0.005	0.061	2.71	0.54	918	0.71	3.55	15.4	0.3	11.8	68	0.001	2.09	1.89	7	438	0.89
219084	43	TF	2.7	0.01	0.058	1.42	2.62	1,035	29.6	2.12	12.4	44.8	10.7	38.7	0.003	1.5	1.03	3	314	0.78
406502	52	TF	3.1	0.005	0.019	2.47	0.68	681	0.52	2.39	9.4	11	15.9	78.8	0.001	0.08	2.32	3	188.5	1.04
219135	34	TW	3.9	0.01	0.072	0.79	2.51	1,220	4.25	1.82	15.5	37.8	13.5	38.8	0.002	0.29	1.53	3	372	1.26
220364	39	TY	2.3	0.06	0.061	1.63	1.44	872	1.69	1.21	8.7	29.9	13.7	58.3	0.001	0.13	3.37	2	193	0.59
219189	56	TY	4.1	0.31	0.098	1.39	1.32	918	3.07	1.33	9.6	28.2	21	39.2	0.003	0.21	1.64	3	438	0.71
220366	69	TY	2.6	0.03	0.077	1.84	1.22	327	2.8	1.66	9.5	32.3	20	64.4	0.003	2.22	3.4	4	342	0.77
224956	54	D																		
224182	47	G				1.6	0.025	30	300	0.09		5	10			0.5	25		20	
226293	51	G				3.9	0.54	460	420	1.2		10	50			0.6	25		400	
406692	36	G				3.3	0.15	40	5	0.13		5	10			12.6	25		300	
225026	37	G				5.6	0.89	320	80	0.32		10	10			1.2	25		190	
105391	42	G				3.4	0.26	30	150	0.09		20	480			12.1	25		590	
105456	48	G				2.6	0.19	20	20	0.15		40	110			9	25		440	
220841 + 220842 ^c	38	Y																		
220841	38 a	Y				6.9	0.54	30	610	0.32		30	10			2.4	25		190	
220842	38 b	Y				3.5	0.31	60	30	0.11		40	10			9.7	25		30	
406717	40	Y				3.1	1.05	910	180	1.72		30	10			0.7	25		460	
107326	44	Y				6.2	0.89	170	110	0.17		40	10			1.2	25		150	
107172	50	Y				2.9	1.86	1,050	5	0.21		40	40			9.5	25		60	
220076	46	Y																		

Sample ID	Humidity Cell No.	Rock Type ^a	Metal Assay Results ^d								
			Te (mg/kg)	Th (mg/kg)	Ti (%)	Tl (mg/kg)	U (mg/kg)	V (mg/kg)	Y (mg/kg)	Zn (mg/kg)	
222788	45	TA					150		120		
226785	49	TB	0.025	1	0.593	0.04	0.4	226	16.3	84	
104472	41	TC	0.35	2.9	0.423	1.66	1.2	168	16.1	296	
406558	53	TC	1.09	4.8	0.498	1.02	2.5	148	20.1	192	
220394	55	TC	0.025	1.3	0.493	0.37	0.8	152	18.7	90	
104775	35	TD	0.05	8.5	1.255	0.18	3.9	156	46	132	
221502	68	TD	0.27	1.9	0.635	0.55	1.2	49	26.1	86	
219084	43	TF	0.39	2.4	0.729	0.35	1.2	156	22.7	85	
406502	52	TF	0.23	6.6	0.708	0.47	3.1	160	19.4	95	
219135	34	TW	0.025	3.8	1.035	0.16	2	174	33.8	126	
220364	39	TY	0.07	3.6	0.479	1.44	1.9	168	18.4	110	
220366	69	TY	0.24	5.4	0.505	0.76	2.1	164	16.3	81	
219189	56	TY	0.19	4.5	0.532	1.26	2.2	165	18.6	108	
224956	54	D									
224182	47	G					260		120		
226293	51	G					120		90		
406692	36	G					240		20		
225026	37	G					540		40		
105391	42	G					200		770		
105456	48	G					190		30		
220841 + 220842 ^c	38	Y									
220841	38 a	Y					320		550		
220842	38 b	Y									
406717	40	Y					210		20		
107326	44	Y					220		110		
107172	50	Y					250		80		
220076	46	Y					220		200		

Notes:

- a. See [REF_Ref249172114 \h].
- b. Samples added after 2008 sampling to evaluate characteristics of high S samples.
- c. Comprises a composite of samples 220841 and 220842 (there was an insufficient mass of the individual samples to fill a humidity cell). At the current time only a partial data set is available for the composite.
- d. For chemical abbreviations see Appendix D of this environmental baseline document. Blank cells indicate that the element was not included in the assay for that sample.

C% = percent carbon by weight.

gpt = grams per metric ton.

mg/kg = milligram(s) per kilogram.

TABLE 11-[SEQ FIGURE * ARABIC]

Tertiary Cover Rocks Selected for Humidity Cell Tests Compared to Sulfur Subpopulations, Pebble East and West Zones

Rock Type	Sample No.	Pebble Zone	Percentage of Overall Population	S%	Selected Elements (results in mg/kg) ^a				
					As	Se	Sb	Mo	Tl
Lower Sulfur Populations									
TA, Andesite – General characteristics:			74	0.048	4	1.8	0.96	1.6	0.22
	No samples of this rock type								
TB, Basalt – General characteristics:			83	0.014	2	1.7	0.49	1.1	0.094
	226785	PEZ		0.19	4.3	0.5	0.35	0.62	0.04
TC, Conglomerate – General characteristics:			86	0.055	9.6	1.4	1.1	1.3	0.33
	220394	PEZ		0.01	7	2	1.08	0.65	0.37
	3129-0417-0435	PWZ		0.03	5.7	0.3	0.1	1.54	0.22
	3129-0253-0272	PWZ		0.11	15.4	0.4	0.52	1.57	0.22
	115-0054-0066	PWZ		0.25	25.6	0.6	0.41	2.91	0.18
TD, Dacite – General characteristics:			87	0.018	5.1	1.4	0.87	2	0.4
	104775	PEZ		0.04	5.1	3	1.98	2.46	0.18
TF, Conglomerate – General characteristics:			83	0.05	8.3	1.6	0.88	1.2	0.31
	406502	PEZ		0.08	12.2	3	2.32	0.52	0.47
TW, Wacke, Sandstone – General characteristics:			100	0.12	15	1.6	1.2	1.8	0.41
	219135	PEZ		0.29	39.2	3	1.53	4.25	0.16
TY, Mudstone, Siltstone – General characteristics			90	0.12	22	1.8	1.3	2.3	0.63
	219189	PEZ		0.21	37	3	1.64	3.07	1.26
	220364	PEZ		0.13	20.9	2	3.37	1.69	1.44
Higher Sulfur Populations									
TA, Andesite – General characteristics:			26	1.4	12	2.8	2.6	1.3	0.42
	222788	PEZ		2.8	170		25	10	
TA/TD	4292 415-430	PWZ		0.88	73.1	4.5	0.8	23.4	0.35

Rock Type	Sample No.	Pebble Zone	Percentage of Overall Population	S%	Selected Elements (results in mg/kg) ^a				
					As	Se	Sb	Mo	Tl
<i>TB, Basalt – General characteristics:</i>				0.54	16	2.2	4.4	5.8	0.25
3102-0958-0978	PWZ			0.69	153	2.9	1.21	25.9	0.21
117-1055-1071	PWZ			0.26	30.9	0.9	0.83	23.6	0.04
<i>TC, Conglomerate – General characteristics:</i>			14	0.64	31	2	1.8	2.7	0.52
104472	PEZ			1.19	490	4	7.59	5.73	1.66
406558	PEZ			1.34	24.2	8	3.32	1.59	1.02
115-0142-0163	PWZ			0.6	46.8	2.3	0.48	1.79	0.59
4292 685-695	PWZ			2.53	165	0.7	0.68	3.18	0.09
<i>TD, Dacite – General characteristics:</i>			13	1.4	11	3.4	1.1	1.1	0.5
221502	New			1.81	17	7	189	0.71	0.55
Andesite/TD	4292 415-430	PWZ		0.88	73.1	4.5	0.8	23.4	0.35
<i>TF, Conglomerate – General characteristics:</i>			17	0.81	11	2	1.3	1.4	0.56
219084	PEZ			1.5	73.5	3	1.03	29.6	0.35
4157 439-471	PWZ			3.8	102	10.7	1.13	7.07	0.99
<i>TY, Mudstone, siltstone – General characteristics:</i>			11	2.2	71	4.4	10	5.4	1.1
220366	New			1.98	43.3	4	3.4	2.8	0.76

Notes:

- a. These elements were selected because they have been found to leach in significant quantities from Tertiary rock types (see discussion in Section 11.8.4.4). For chemical abbreviations see Appendix D of this environmental baseline document.

PEZ = Pebble East Zone.

mg/kg = milligram(s) per kilogram.

PWZ = Pebble West Zone.

S% = percent sulfur by weight.

TABLE 11-[SEQ FIGURE * ARABIC]
Summary of Samples Selected for Stored Bag Weathering Tests of Composites, Pebble East Zone

Composite No.	Sample	Hole-ID	From_Feet	To_Feet	Rock Type ^a	Mass Collected (kg)
Pre-Tertiary						
1	224267	5311	3,058	3,068	G	6.5
1	222722	5337	3,778	3,788	G	5.7
1	226285	6342	3,126	3,136	G	5.8
2	225377	5326	3,618	3,628	G	6.3
2	221880	5335	4,078	4,088	G	7.2
2	225016	5325	1,908	1,918	G	12.4
2	219529	5324	1,897	1,907	G	10.3
3	105348	6351	1,165	1,175	G	10.4
3	107875	6344	5,585	5,595	G	7.4
4	406705	6354	2,689	2,694	G	10.6
4	105481	6351	2,430	2,440	G	13
5	107499	6350	3,728	3,740	Y	4
5	107488	6350	3,628	3,638	Y	4.2
5	406905	6354	4,586	4,596	Y	6.8
6	104739	6341	3,955	3,965	Y	8.1
6	224988	5325	1,648	1,658	Y	12
6	406946	6354	4,983	4,990	Y	4.3
7	107088	6346	2,423.5	2,434	Y	11.8
7	104191	6350	1,738	1,748	Y	11.4
8	220093	5328	1,168	1,178	Y	11.9
8	220116	5328	1,388	1,398	Y	12.8
Tertiary						
9	411865	7364	689	710	TC	40.2
10	56190	4284	620	631.5	TC	8.6
10	219776	5327	467	487	TF	27.8
10	56193	4284	655	670	TC	10.6
11	219790	5327	717	737	TY	43.8
12	55340	4250	78	83	TW	8
12	406083	7359	1,760	1,780	TWTF	43.5
13	407741	7365	1,015	1,030	TC	39.4
14	407160	7363	268	288	TW	32.2
15	407726	7365	752	773	TB	45.8
16	815912	7378	325	344	TB	40
17	105642	6347	2,895	2,915	TB	13.4
17	406064	7359	1,400	1,420	TB	35.1
18	816007	7378	2,019	2,029	TB	22.4

GEOCHEMICAL CHARACTERIZATION—BRISTOL BAY DRAINAGES

Composite No.	Sample	Hole-ID	From_Feet	To_Feet	Rock Type ^a	Mass Collected (kg)
19	226338	6344	125	145	TA	45
20	226350	6344	365	385	TA	38.3

Notes:

a. See Table 11-1.

kg = kilogram(s).

TABLE 11-[SEQ FIGURE 1* ARABIC]**Sample Matrix for Field Weathering (Barrel) Tests, Pebble East and West Zones**

Barrel No.	Age	Pebble Zone	Lithology	Samples Used in Mass Required to Fill the Barrels (Hole No.: Wet mass)
ARLB001	Pre-Tertiary	PWZ	Typical metasedimentary (mudstone). Based on assessment of the number of intervals categorized as metasedimentary lithological groups in the NDM Pebble Drill-Core Database as of May 1, 2007 (NDM, 2007). Only mudstone (Y) is volumetrically significant.	Hole 4304: 98.6 kg Hole 4242: 60.6 kg Hole 4273: 43.7 kg Hole 4246: 19.0 kg Hole 4247: 22.8 kg Hole 4224: 3.5 kg
ARLB002	Pre-Tertiary	PWZ		Hole 4304: 100.2 kg Hole 4242: 49.9 kg Hole 4273: 61.9 kg Hole 4246: 20.4 kg Hole 4247: 24.1 kg
ARLB003	Pre-Tertiary	PWZ	Typical intrusive. Based on assessment of the number of intervals categorized within intrusive lithological groups in the NDM Pebble Drill-Core Database as of May 1, 2007 (NDM, 2007). Only granodiorite (G), diorite (D), and monzodiorite (N) are volumetrically significant and could be mixed at the following ratio: 2:1:1 G:D:N.	Hole 3095 (G): 84.1 kg Hole 4220 (G): 9.7 kg Hole 4157 (G): 6.3 kg Hole 4196 (G): 2.5 kg Hole 4202 (G): 2.4 kg Hole 4159 (G): 17.3 kg Hole 4249 (N): 69.2 kg Hole 4183 (D): 33.0 kg Hole 4160 (D): 47.0 kg Hole 4159 (D): 18.1 kg Hole 4163 (D): 3.0 kg
ARLB006	Pre-Tertiary	PWZ		Hole 4183 (D): 9.8 kg Hole 4160 (D): 66.1 kg Hole 4163 (D): 2.1 kg Hole 4220 (G): 9.7 kg Hole 4157 (G): 6.2 kg Hole 4159 (G): 40.3 kg Hole 4196 (G): 3.2 kg Hole 4202 (G): 3.7 kg Hole 3095 (G): 53.6 kg Hole 4249 (N): 64.8 kg
ARLB010	Tertiary	PEZ	TA+TB - Andesite/Basalt Andesite and basalt lithologies are considered indistinguishable in hand specimen and so have been combined and treated as one lithological type (referred to as TA+TB).	Hole 6351: 139.4 kg Hole 6339: 116.2 kg Hole 5336: 23.0 kg
ARLB009	Tertiary	PEZ+PWZ	TD - Dacite	Hole 7369: 89.4 kg Hole 6343: 87.5 kg Hole 6347: 38.1 kg

GEOCHEMICAL CHARACTERIZATION—BRISTOL BAY DRAINAGES

Barrel No.	Age	Pebble Zone	Lithology	Samples Used in Mass Required to Fill the Barrels (Hole No.: Wet mass)
ARLB008	Tertiary	PWZ	TC/TF/TX – Conglomerates Because TX is volumetrically insignificant, this barrel could comprise a mixture of TC and TF. A suitable mixing ratio is 5:1 TC:TF (based on the number of intervals categorized within these lithological groups in the NDM Pebble Drill-Core Database (NDM, 2007).	Hole 4156 (TF): 38.1 kg Hole 4156 (TC): 115.9 kg Hole 4155 (TF): 16.9 kg Hole 4155 (TC): 30.8 kg
ARLB007	Tertiary	PWZ		Hole 4155 (TF): 11.3 kg Hole 4155 (TC): 60.7 kg Hole 4156 (TF): 16.2 kg Hole 4156 (TC): 104.2 kg
ARLB004	Tertiary	PEZ+PWZ	TW – Wacke/sandstone	Hole 4156: 33.2 kg Hole 5332: 57.9 kg Hole 4155: 50.1 kg Hole 5336: 47.4 kg Hole 5330: 28.1 kg
ARLB005	Tertiary	PEZ+PWZ	TY - Mudstone	Hole 5330: 61.4 kg Hole 6339: 116.5 kg Hole 5332: 53.9 kg Hole 4157: 7.9 kg Hole 5336: 21.9 kg
ARLB011	-	-	Blank	

Notes:

kg = kilogram(s).

PEZ = Pebble East Zone.

PWZ = Pebble West Zone.

TABLE 11-[SEQ FIGURE 1* ARABIC]**Summary of Tests Undertaken in the Geochemical Characterization Study**

Test	Waste Rock Test Count						Tailings Test Count	
	PWZ		PEZ		Overburden	PWZ	PEZ	
	Pre-Tertiary	Tertiary	Pre-Tertiary	Tertiary				
Acid-base Accounting	485	145	200	200	26	36	12	
Mineralogy	17	13	14	13	0	8	12	
Shake-flask Extractions	26	6	8	12	0	0	0	
NAG	26	6	0	0	0	0	0	
MWMP	0	27	0	0	9	0	0	
Humidity Cell	21	15+3 ^a	13	14+3 ^a	0	9	9	
Stored Bag	0	0	8	12	0	0	0	
Subaqueous Columns	6	0	0	2	0	0	0	
Aerated Columns	0	0	0	0	0	2	0	
Field (Barrel)	4	2+3 ^a	0	1+3 ^a	0	0	0	

Notes:

a. Three of these tests comprised material from both the Pebble East and Pebble West zones.

MWMP = Meteoric Water Mobility Procedure.

NAG = net acid generation.

PEZ = Pebble East Zone.

PWZ = Pebble West Zone.

TABLE 11-[SEQ FIGURE * ARABIC]
Summary of Optical Mineralogy Results—Pre-Tertiary Samples, Pebble East and West Zones

Sample ID	Rock Type ^b	Mineralogy Results (percent based on visual examination) ^a													
		Pyrite	Cpy	Mo	Sulfides		Anh	Gypsum	Carbonates	Hem	Mag	Oxides	Aluminosilicates		
Pebble West Zone															
025-0617-0637	D	5	1	tr	asp, dig, cov, tt-tn			tr	2			50	25	5	
3123-0438-0458	D	5	tr					tr		tr	10	60			
046-0580-0600	G	2	1	tr	bor			tr	tr		70	5	1		
3069-0927-0947	G	2	tr	tr						tr	50	5	15		
118-0468-0488	M	1	1	tr	bor, cov			11	7		75	3	tr		
046-0113-0133	N	2	1	tr	dig, cov			1	3		60	15			
117-0190-0210	N	2	1				1	1	3		65	15	1		
019-0072-0090	WY	1						1	5		50	20	5		
047-0350-0365	WY	5	1	dig				tr	3		40	15	10		
118-1220-1238	WY	2	tr	tr	asp			5	tr	tr	30	15	10		
112-0460-0480	X	3	1					tr	1.5		50	10	1		
3124-0872-0887	X	2	tr	tr				1	tr		30	10	1		
033-0137-0155	Y	7	2					tr	tr		10	30	10		
118-0520-0535	Y	4	1	dig				tr	1		30	15	1		
3102-0568-0588	Y	5	tr	tr				2			40	15	2		
3115-0988-1008	Y	2	1					tr	tr		20	15	2		
3124-0188-0209	Y	2	1	dig, cov			1		tr		40	15	tr		
Pebble East Zone															
224956	D	2	1	tr	marc			tr	1			30	5	3	
224182	G	1	1		chal, bor, sphal			tr				15			
226293	G	1	1		sphal, aspy?			2	tr			30			
105391	G	20			cov, sphal				tr?	tr		70	1		
105456	G	20			cov, bor			tr	tr?			70	1		
225026	G	2	1	tr				tr	tr			3	15	7	
406692	G	20	tr							tr		70	tr		
107172	Y	2	3	tr				2	tr?				3	20	3 to 5
107326	Y	2	tr	tr				1			tr	tr		5	15
220842	Y	2	13	tr	sphal			tr	tr			7	20	5	
406717	Y	20	tr							tr			70	tr	
220076	Y	20	tr					tr	tr	tr		20	10		

Notes:

a. Blank cells indicate that the mineral was not identified in that sample.

b. See [REF_Ref249172114 \h].

c. Question mark (?) denotes uncertainty in identification.

d. Unidentifiable oxides.

anh = anhydrite.

bor = bornite.

cov = covellite.

hem = hematite.

marc = marcasite.

sphal = sphalerite.

asp = arsenopyrite.

chal = chalcocite.

cpy = chalcopyrite.

K-spar = potassium feldspar.

mo = molybdenite.

tr = trace.

biot = biotite.

chl = chlorite.

dig = digenite.

mag = magnetite.

ser = sericite.

tt-tn = tetrahedrite-tennantite.

TABLE 11-[SEQ FIGURE * ARABIC]
Summary of X-ray Diffraction Results—Pre-Tertiary Samples, Pebble East Zone

Sample ID	Humidity Cell No.	Rock Type ^b	Results of Quantitative Phase Analysis (wt%) ^a														
			Sulfides		Carbonates		Oxides	Aluminosilicates									
			Pyrite	Chalcopyrite	Calcite	Siderite	Boehmite? ^c	Quartz	Plagioclase	K-feldspar	Clinochlore	Muscovite	Muscovite Mg? ^c	Biotite	Kaolinite	Clinozoite	Grossular
224956	54	D	3.9	0.9		1.2		18.6	6.9	38.9	8.1	2.3			17.3		1.7
224182	47	G	1.1	0.8				82.9		10.9		4.2					
226293	51	G	0.7		4.5		0.4	31.9	14	25	4.7	18.8					
406692	36	G	21.8					32.6		2.2		43.3					
225026	37	G	1.8	0.6				35.4		43.5	5.1	12.9					
105391	42	G	27.1					30.3		1.5		40.1					1
105456	48	G	13.7					39		2.1		45.2					
220841 +	38	Y															
220842																	
220841	38 a	Y	1.6	5			0.397	20.3		49.3	1.6	19			2.807		
220842	38 b	Y	1.8	5.2			0.745	20.6		43.4		28.2					
406717	40	Y	17.1					30		2		50.9					
107326	44	Y	1.2		1.2			9	24.7	34.7	12.3	12.6					4.3
107172	50	Y	2.7					49.1		7.7	14.1	20					6.5
220076	46	Y	17.6					27.6		4	8.8	22.5	8.1	8.8			2.6

Notes:

a. Results obtained through Rietveld X-ray diffraction analysis. Blank cells indicate that the mineral was not identified in that sample.

b. See Table 11-1.

c. Question mark (?) denotes uncertainty in identification.

wt% = weight percent.

TABLE 11-[SEQ FIGURE * ARABIC]

Summary of Acid-base Accounting Statistics by Rock Type—Pre-Tertiary Samples, Pebble East and West Zones ^a

Stratigraphic Section	Rock Type ^b	Sample Count	pH				AP (kg CaCO ₃ /t)				NP _{modified} (kg CaCO ₃ /t)				TIC (kg CaCO ₃ /t)							
			Min	P5	P50	P95	Max	Min	P5	P50	P95	Max	Min	P5	P50	P95	Max	Min	P5	P50	P95	Max
Pebble West Zone																						
Cretaceous Stratiform and Cross-cutting Plutonic Rocks	D	55	4.47	5.06	7.76	8.73	9.00	1.9	46.7	114.7	232.3	251.9	-4.0	3.5	29.0	56.0	65.0	0.8	1.7	44.2	97.4	129.2
	G (Gp and Gs)	123	4.12	4.83	7.82	8.81	9.28	0.9	14.4	46.9	158.7	314.1	-3.9	-1.1	6.9	37.8	48.5	0.8	0.8	9.5	46.2	75.8
	N	46	4.50	5.10	7.48	8.58	8.87	4.4	30.4	64.2	124.1	272.8	-1.1	-0.7	6.2	41.6	116.1	0.8	0.8	12.5	103.3	159.2
	F (and X2)	28	5.62	6.26	7.74	8.58	8.59	1.3	35.4	90.0	147.9	170.9	1.1	2.0	15.1	36.5	40.8	0.8	0.9	37.2	62.6	67.5
	M	16	5.11	5.58	8.02	8.62	9.08	14.1	21.1	40.5	68.7	72.2	-1.1	1.6	15.9	49.8	52.8	0.8	0.8	38.0	101.7	109.2
	X	29	4.02	5.33	7.67	8.85	9.13	0.0	29.0	66.3	141.1	156.6	0.2	1.1	8.8	48.1	92.5	0.8	0.8	19.2	63.8	114.2
	P	13	5.99	6.12	8.03	8.49	8.69	0.3	0.5	52.8	123.7	181.3	0.1	0.2	18.0	43.6	45.5	0.8	0.8	20.8	69.2	71.7
	K	5	5.66	5.84	7.07	8.55	8.68	59.7	60.6	70.3	228.3	253.1	0.6	1.3	5.8	18.3	18.5	0.8	0.8	0.8	9.7	10.0
	R	17	4.39	4.52	8.20	8.82	8.94	18.4	42.9	124.1	249.5	362.5	-2.8	1.6	28.5	37.5	41.3	0.8	2.2	19.2	70.5	75.8
Other	Z	10	4.40	4.48	7.50	8.65	8.77	18.8	27.6	62.2	239.0	314.7	-2.9	0.1	14.9	94.0	102.5	0.8	0.8	40.4	112.0	126.7
Jurassic to Cretaceous Sedimentary and Volcano-sedimentary Rocks	Y	123	4.04	4.82	7.38	8.83	9.60	0.0	0.3	73.8	170.3	262.2	-2.0	-0.2	7.8	30.7	88.8	0.8	0.8	13.9	53.3	115.8
	W	8	4.75	5.14	6.58	8.63	9.16	12.5	24.2	83.0	130.0	138.4	0.4	0.5	3.4	32.0	32.6	0.8	0.8	1.3	42.9	45.8
Cretaceous Stratiform and Cross-cutting Plutonic Rocks	D	7	5.63	6.17	8.17	8.54	8.61	15.3	16.0	19.7	29.7	32.2	6.7	7.2	8.9	15.0	15.2	2.2	2.2	2.2	10.7	11.4
	G	118	2.15	3.43	6.81	8.75	9.06	0.3	5.9	39.2	367.6	852.2	-37.0	-2.6	4.1	33.2	85.3	2.2	2.2	2.2	29.5	79.5
	P	1	9.55	9.55	9.55	9.55	9.55	3.75	3.75	3.75	3.75	3.75	7.9	7.9	7.9	7.9	6.8	6.8	6.8	6.8	6.8	
Other	Z	7	5.99	6.66	8.43	9.00	9.10	1.6	9.2	35.0	42.5	44.4	6.2	10.0	23.2	76.7	81.9	2.2	2.9	18.2	54.5	68.2
Jurassic to Cretaceous Sedimentary and Volcano-sedimentary Rocks	Y	48	3.07	3.93	7.50	9.23	9.47	3.4	11.6	33.6	257.9	305.3	-14.7	-2.8	9.3	23.4	28.1	2.2	2.2	4.5	21.9	63.6
	W	7	6.28	6.29	8.12	8.93	8.99	4.4	4.8	23.8	39.1	41.3	2.6	3.1	10.4	19.6	20.2	2.2	2.2	6.8	16.8	18.2

		NP _{modified} /AP					Arsenic (mg/kg)					Copper (mg/kg)					Molybdenum (mg/kg)					
		Min	P5	P50	P95	Max	Min	P5	P50	P95	Max	Min	P5	P50	P95	Max	Min	P5	P50	P95	Max	
Pebble West Zone																						
Cretaceous Stratiform and Cross-cutting Plutonic Rocks	D	55	-0.9	0.0	0.2	0.8	1.4	1.5	2.2	25.0	862.0	1225.8	104	413	1,750	6,027	13,550	1	8	37	238	750
	G (Gp and Gs)	123	-0.4	0.0	0.1	1.1	1.6	1.5	3.5	25.0	252.5	1574.7	101	730	2,961	7,049	12,350	4	24	156	586	2,010
	N	46	-0.1	0.0	0.1	1.2	15.5	1.0	1.5	24.5	262.9	913.0	150	411	2,258	7,508	8,090	20	25	122	322	673
	F (and X2)	28	0.0	0.0	0.2	0.8	3.0	1.5	3.6	25.0	188.4	382.0	908	969	1,898	3,008	3,080	19	37	99	178	327
	M	16	0.0	0.1	0.3	1.4	1.9	2.6	3.7	25.0	79.6	111.5	1650	2070	2,996	4,906	5,096	69	69	205	399	490
	X	29	0.0	0.0	0.2	1.4	1.6	2.0	2.9	26.0	303.7	466.0	244	590	2,015	3,891	4,303	25	27	103	341	417
	P	13	0.0	0.0	0.3	1.4	2.3	1.5	2.1	20.5	449.3	698.0	225	641	2,270	3,734	3,806	8	9	180	406	481
	K	5	0.0	0.0	0.0	0.3	0.3	1.0	2.0	8.0	14.0	14.0	190	195	259	1,161	1,280	1	2	4	20	22
	R	17	0.0	0.0	0.2	0.6	0.9	1.0	1.4	26.9	448.0	450.0	239	279	396	3,175	3,373	1	2	11	138	145

GEOCHEMICAL CHARACTERIZATION—BRISTOL BAY DRAINAGES

Notes:

- a. In cases where a value in original data reflected the method detection limit, statistics were calculated based on a value equal to one-half the detection limit.
b. See Table 11-1.

b. See Table 11-1.

mg/kg = milligram(s) per kilogram

P5 = 5th percentile.

P50 = 50th percentile.

P95 = 95th percentile.

TABLE 11-[SEQ FIGURE 1* ARABIC]
Number of Samples by Drilling Year, Pebble West Zone

Drilling Year ^a	Number of Samples
1989	2
1990	20
1991	59
1992	10
1997	55
2002	15
2003	199

Note:

a. Samples were from core drilled before 2004.

TABLE 11-[SEQ FIGURE * ARABIC]

Summary of Average Release Rates for Humidity Cell Kinetic Tests, Pre-Tertiary Samples, Pebble East and West Zones ^a

Sample ID	Rock Type ^b	Date Test Started	Date of Last Interpretative Data Review	Test Days	Alkalinity (mg/kg/week)	Cl (mg/kg/week)	F (mg/kg/week)	SO ₄ (mg/kg/week)	Al (mg/kg/week)	Sb (mg/kg/week)	As (mg/kg/week)	Ba (mg/kg/week)	Be (mg/kg/week)	Bi (mg/kg/week)	B (mg/kg/week)
Pebble West Zone															
025-0617-0637	D	08-Feb-05	30-Aug-05	29	0.49	0.25	0.049	119	0.039	0.00067	0.003	0.0005	0.00045	0.00063	0.016
046-0113-0133	N	08-Feb-05	30-Aug-05	29	1.1	0.25	0.047	20	0.01	0.0011	0.00021	0.015	0.0001	0.00025	0.0088
046-0580-0600	G	08-Feb-05	30-Aug-05	29	16	0.25	0.023	6.2	0.022	0.0018	0.00034	0.017	0.0001	0.00025	0.0062
112-0460-0480	X	08-Feb-05	30-Aug-05	29	2.5	0.24	0.039	21	0.0012	0.0011	0.00069	0.0063	0.000096	0.00024	0.0048
117-0190-0210	N	09-Feb-05	31-Aug-05	29	4	0.25	0.061	22	0.0023	0.00064	0.000064	0.0087	0.000099	0.00025	0.0067
118-0468-0488	M	09-Feb-05	31-Aug-05	29	25	0.24	0.043	7.7	0.012	0.0015	0.00047	0.0092	0.000096	0.00024	0.0048
3069-0927-0947	G	09-Feb-05	14-Oct-09	244	0.5	0.25	0.22	103	1.5	0.00083	0.0022	0.0021	0.00056	0.00085	0.017
3123-0438-0458	D	10-Feb-05	01-Sep-05	29	12	0.25	0.034	13	0.018	0.0024	0.00071	0.0083	0.000098	0.00025	0.0049
3124-0872-0887	X	10-Feb-05	29-Jun-06	72	22	0.25	0.016	14	0.0073	0.0017	0.00027	0.0043	0.000098	0.00025	0.0049
019-0072-0090	WY	08-Feb-05	30-Aug-05	29	1	0.24	0.035	5.1	0.0048	0.0012	0.000064	0.0049	0.000097	0.00024	0.0088
033-0137-0155	Y	08-Feb-05	30-Aug-05	29	11	0.25	0.018	12	0.039	0.0022	0.00046	0.0059	0.000098	0.00025	0.0075
047-0350-0365	WY	08-Feb-05	27-Jun-06	72	4.1	0.25	0.17	20	0.0013	0.00024	0.00005	0.0016	0.0001	0.00025	0.005
118-0520-0535	Y	09-Feb-05	31-Aug-05	29	10	0.25	0.052	52	0.002	0.0022	0.00081	0.0053	0.0001	0.00025	0.0051
118-1220-1238	WY	09-Feb-05	31-Aug-05	29	14	0.26	0.026	30	0.0063	0.0016	0.000072	0.0032	0.0001	0.00026	0.0052
3102-0568-0588	Y	09-Feb-05	31-Aug-05	29	14	0.25	0.076	20	0.01	0.0037	0.0021	0.0054	0.0001	0.00025	0.005
3115-0988-1008	Y	10-Feb-05	29-Jun-06	72	13	0.25	0.01	7.9	0.022	0.0018	0.00051	0.0063	0.000099	0.00025	0.0049
3124-0188-0209	Y	10-Feb-05	15-Oct-09	244	0.48	0.24	0.06	23	0.9	0.00038	0.00017	0.0027	0.00028	0.0007	0.014
Pebble East Zone															
224956	D	17-Jan-08	15-Oct-09	91	12	0.24	0.0097	7.4	0.012	0.00013	0.00014	0.0012	0.000097	0.00024	0.0048
224182	G	16-Jan-08	14-Oct-09	91	1	0.25	0.01	3	0.0028	0.0031	0.007	0.0015	0.000098	0.00025	0.0049
226293	G	17-Jan-08	15-Oct-09	91	19	0.24	0.017	5.2	0.01	0.00027	0.00063	0.0036	0.000097	0.00024	0.0049
406692	G	15-Jan-08	13-Oct-09	91	0	0.88	0.053	44.7	0.52	0.000068	0.0018	0.00014	0.00039	0.00023	0.0046
225026	G	15-Jan-08	13-Oct-09	91	1	0.24	0.01	6.4	0.0029	0.00026	0.0003	0.0022	0.000098	0.00024	0.0049
105391	G	16-Jan-08	14-Oct-09	91	0	1.52	0.035	79.55	0.31	0.000052	0.032	0.00029	0.00018	0.00046	0.0091
105456	G	16-Jan-08	14-Oct-09	91	0	0.24	0.027	40.4	0.63	0.00005	0.0019	0.0042	0.0001	0.00024	0.0049
220841 + 220842	Y	15-Jan-08	13-Oct-09	91	0	0.23	0.016	16.9	0.055	0.000067	0.00017	0.0033	0.00039	0.00066	0.013
406717	Y	15-Jan-08	13-Oct-09	91	0	0.91	0.049	42.3	0.53	0.0001	0.0015	0.000059	0.0011	0.00026	0.0051
107326	Y	16-Jan-08	14-Oct-09	91	13	0.24	0.091	2	0.05	0.00015	0.00024	0.00016	0.000097	0.00024	0.0049
107172	Y	17-Jan-08	15-Oct-09	91	10	0	0.28	5.3	0.012	0.00023	0.00034	0.0002	0.000097	0.00024	0.0048
220076	Y	16-Jan-08	14-Oct-09	91	1	0.24	0.035	45.8	0.056	0.00003	0.000065	0.0092	0.00042	0.0003	0.0061
Barrel Test Subsamples (Pebble West Zone)															
ARLB003	G/D/N	18-Jan-08	16-Oct-09	91	21	0.23	0.038	25	0.0053	0.00023	0.00026	0.0028	0.000091	0.00023	0.0051
ARLB006	G/D/N	18-Jan-08	16-Oct-09	91	24	0.22	0.07	15.2	0.0059	0.00073	0.0029	0.0038	0.000089	0.00022	0.0051
ARLB001	Y	18-Jan-08	16-Oct-09	91	0	0.23	0.093	40.1	0.13	0.0001	0.00041	0.0031	0.00059	0.00023	0.0061
ARLB002	Y	18-Jan-08	16-Oct-09	91	0	0.23	0.17	58.3	0.66	0.000078	0.0006	0.00097	0.0014	0.00039	0.0085

Sample ID	Rock Type ^b	Cd (mg/kg/week)	Ca (mg/kg/week)	Cr (mg/kg/week)	Co (mg/kg/week)	Cu (mg/kg/week)	Fe (mg/kg/week)	Pb (mg/kg/week)	Mg (mg/kg/week)	Mn (mg/kg/week)	Hg (mg/kg/week)	Mo (mg/kg/week)	Ni (mg/kg/week)	K (mg/kg/week)
Pebble West Zone														
025-0617-0637	D	0.00045	13	0.00063	0.025	2.1	0.23	0.00011	18.67	3	0.0000049	0.000041	0.027	1.54
046-0113-0133	N	0.0012	2.7	0.00025	0.0053	1.8	0.015	0.000031	2.06	0.094	0.0000050	0.000028	0.0032	0.69
046-0580-0600	G	0.000025	4	0.00025	0.00005	0.004	0.015	0.000025	2.39	0.0077	0.0000050	0.00046	0.00025	0.7
112-0460-0480	X	0.000075	4.2	0.00024	0.00081	0.021	0.014	0.000024	1.95	1.1	0.0000049	0.000072	0.0018	0.63
117-0190-0210	N	0.000072	3.5	0.00025	0.00036	0.0059	0.015	0.000025	3.63	0.16	0.0000049	0.000039	0.00045	0.42
118-0468-0488	M	0.000024	6.6	0.00024	0.000048	0.0026	0.014	0.000024	3.26	0.0087	0.0000048	0.0019	0.00024	0.53
3069-0927-0947	G	0.00084	3	0.00085	0.017	5.1	12	0.00034	0.82	0.86	0.0000051	0.00018	0.012	0.95
3123-0438-0458	D	0.000025	5.6	0.00025	0.000049	0.0015	0.015	0.000025	1.62	0.0029	0.0000049	0.00074	0.00025	1.49
3124-0872-0887	X	0.000025	10	0.00026	0.000069	0.0026	0.015	0.000087	2.29	0.016	0.0000049	0.0017	0.00025	0.49
019-0072-0090	WY	0.000032	1.2	0.00024	0.0018	0.083	0.015	0.000025	0.31	0.056	0.0000048	0.0029	0.00049	0.38
033-0137-0155	Y	0.000025	5.2	0.00025	0.000049	0.0017	0.015	0.000027	1.89	0.052	0.0000049	0.0012	0.00025	0.68
047-0350-0365	WY	0.00014	3.6	0.00025	0.00046	0.0074	0.015	0.000026	3.3	0.27	0.0000050	0.000029	0.00038	0.32
118-0520-0535	Y	0.000025	15.7	0.00025	0.001	0.011	0.015	0.000025	5.13	0.21	0.0000081	0.00047	0.0012	0.47
118-1220-1238	WY	0.000032	11.4	0.00026	0.0001	0.0028	0.015	0.000026	3.13	0.014	0.0000053	0.0016	0.00026	0.53
3102-0568-0588	Y	0.000025	9.1	0.00025	0.000098	0.0014	0.015	0.000025	2.21	0.071	0.0000050	0.0013	0.00025	0.53
3115-0988-1008	Y	0.000025	4.4	0.00025	0.00005	0.0021	0.015	0.000032	1.76	0.016	0.0000049	0.0018	0.00026	0.59
3124-0188-0209	Y	0.0002	0.6	0.0007	0.0051	3.9	1.2	0.00053	0.19	0.0092	0.0000048	0.00008	0.007	0.57
Pebble East Zone														
224956	D	0.000024	4.4	0.00024	0.000048	0.0012	0.015	0.000026	1.22	0.01	0.0000049	0.0068	0.00024	0.79
224182	G	0.000097	0.7	0.00025	0.00056	0.25	0.015	0.00047	0.14	0.0062	0.0000049	0.00023	0.00037	0.18
226293	G	0.000024	7.4	0.00024	0.00018	0.0024	0.014	0.000032	0.4	0.038	0.0000048	0.01	0.00024	1.02
406692	G	0.00044	1	0.00051	0.0059	0.76	13	0.00011	0.05	0.006	0.0000046	0.000025	0.0021	0.1
225026	G	0.000024	2	0.00024	0.00089	0	0.016	0.000029	0.32	0.02	0.0000050	0.00037	0.00058	0.82
105391	G	0.014	0.4	0.004	0.0093	2.1	23	0.00062	0.08	0.0034	0.0000051	0.00041	0.0039	0.12
105456	G	0.00029	0.6	0.0017	0.0057	0.43	11	0.00011	0.17	0.01	0.0000049	0.000024	0.0062	0.16
220841 + 220842	Y	0.0023	1.8	0.00066	0.017	3.3	0.6	0.00029	0.11	0.015	0.0000048	0.00007	0.028	0.53
406717	Y	0.0002	0.9	0.00043	0.013	1.1	11	0.000066	0.21	0.019	0.0000048	0.000036	0.011	0.29
107326	Y	0.000027	5.5	0.00024	0.000049	0.00049	0.015	0.000024	0.07	0.012	0.0000049	0.005	0.00024	0.25
107172	Y	0.000025	5.4	0.00024	0.00015	0.0033	0.015	0.000028	0.06	0.011	0.0000048	0.0016	0.00024	0.42
220076	Y	0.0011	6.2	0.0003	0.003	0.21	0.034	0.00022	5.8	1.8	0.0000048	0.000035	0.0073	0.86
Barrel Test Subsamples (Pebble West Zone)														
ARLB003	G/D/N	0.000026	12	0.00023	0.000047	0.0012	0.014	0.000024	2.94	0.012	0.0000045	0.0055	0.00023	1.27
ARLB006	G/D/N	0.000027	8.8	0.00024	0.000046	0.0013	0.013	0.000026	2.92	0.0054	0.0000045	0.013	0.00023	1.3
ARLB001	Y	0.0006	9	0.00023	0.0097	0.82	0.13	0.0002	2.71	0.25	0.0000049	0.000024	0.017	0.8
ARLB002	Y	0.00069	12	0.0004	0.01	1.8	0.62	0.00095	2.82	0.69	0.0000046	0.000039	0.026	1.21

Sample ID	Rock Type ^b	Se (mg/kg/week)	Ag (mg/kg/week)	Na (mg/kg/week)	Tl (mg/kg/week)	S (mg/kg/week)	V (mg/kg/week)	Zn (mg/kg/week)
Pebble West Zone								
025-0617-0637	D	0.012	0.0000082	0.98	0.002	0.000082	0.00049	0.14
046-0113-0133	N	0.0016	0.0000050	1	0.000094	0.000056	0.00025	0.073
046-0580-0600	G	0.0005	0.0000053	1	0.000025	0.00005	0.00025	0.00062
112-0460-0480	X	0.00075	0.0000048	0.96	0.00013	0.000048	0.00024	0.014
117-0190-0210	N	0.0012	0.0000049	0.99	0.000038	0.000049	0.00025	0.003
118-0468-0488	M	0.00064	0.0000048	0.96	0.000032	0.000048	0.00024	0.00048
3069-0927-0947	G	0.0022	0.000069	1	0.00023	0.00018	0.00086	0.17
3123-0438-0458	D	0.0015	0.0000049	0.98	0.000025	0.000049	0.00025	0.00049
3124-0872-0887	X	0.00049	0.0000051	0.98	0.000025	0.000066	0.00025	0.00058
019-0072-0090	WY	0.0022	0.0000049	0.97	0.000024	0.000049	0.00024	0.011
033-0137-0155	Y	0.0005	0.0000049	0.98	0.000025	0.00005	0.00025	0.00074
047-0350-0365	WY	0.0013	0.0000059	1	0.000029	0.000068	0.00025	0.0034
118-0520-0535	Y	0.0017	0.0000051	1	0.00025	0.000051	0.00025	0.0031
118-1220-1238	WY	0.00067	0.0000072	1	0.000026	0.000052	0.00026	0.0017
3102-0568-0588	Y	0.0005	0.0000050	1	0.00028	0.00005	0.00025	0.00081
3115-0988-1008	Y	0.00055	0.0000052	0.99	0.000025	0.000057	0.00029	0.00063
3124-0188-0209	Y	0.0027	0.000070	0.97	0.00012	0.00014	0.0007	0.03
Pebble East Zone								
224956	D	0.00054	0.0000048	1	0.000024	0.0031	0.00024	0.00076
224182	G	0.0012	0.0000049	1	0.000025	0.00019	0.00025	0.05
226293	G	0.0011	0.0000048	1	0.000024	0.0017	0.00024	0.00052
406692	G	0.0018	0.0000017	0.9	0.000023	0.00012	0.0011	0.082
225026	G	0.00059	0.0000049	1	0.000024	0.00057	0.00029	0.002
105391	G	0.0037	0.000012	1	0.00019	0.00039	0.0096	2.3
105456	G	0.0016	0.0000083	1	0.000024	0.00023	0.00068	0.1
220841 + 220842	Y	0.0036	0.000013	1	0.000066	0.00017	0.00066	1
406717	Y	0.0027	0.000024	1	0.000026	0.00021	0.00055	0.11
107326	Y	0.00049	0.0000049	1	0.000024	0.0017	0.00046	0.00049
107172	Y	0.00067	0.0000049	1	0.000024	0.0023	0.00024	0.00062
220076	Y	0.00069	0.0000076	1	0.000031	0.00025	0.0003	0.11
Barrel Test Subsamples (Pebble West Zone)								
ARLB003	G/D/N	0.00086	0.0000047	0.9	0.000026	0.0005	0.00023	0.00058
ARLB006	G/D/N	0.002	0.0000045	0.9	0.000025	0.00018	0.00028	0.00054
ARLB001	Y	0.0027	0.0000056	0.92	0.00014	0.000049	0.00023	0.066
ARLB002	Y	0.0014	0.000010	0.9	0.00015	0.00019	0.00039	0.11

Notes:

a. For chemical abbreviations see Appendix D of this environmental baseline document.

b. See Table 11-1.

mg/kg/week = milligram(s) per kilogram per week.

TABLE 11-[SEQ FIGURE * ARABIC]

Results from Static Tests on Stored Bag Materials—Pre-Tertiary Samples, Pebble East Zone ^a

Sample ID ^b	Paste pH (Std. Units)	CO ₂ (%)	Equiv. CaCO ₃ (kg CaCO ₃ /t)	Total S (S%)	Sulfate (S%)	Sulfur Diff. (S%)	Modified NP (kg CaCO ₃ /t)	Net NP (kg CaCO ₃ /t)	NP/AP (Ratio)	Fizz Test (Visual)	Ag (mg/kg)	Al (%)	As (mg/kg)	Au (mg/kg)	B (mg/kg)	Ba (mg/kg)	Be (mg/kg)	Bi (mg/kg)	Ca (%)	Cd (mg/kg)
LOD	0.01	0.2	N/A	0.01	0.01	N/A	N/A	0.2	N/A	N/A	0.01	0.01	0.1	0.2	10	10	0.05	0.01	0.01	0.01
1	8.48	0.7	15.9	0.52	<0.01	0.52	16.3	18.4	2.2	1.13	None	0.56	0.57	23.5	<0.2	<10	30	0.38	0.35	0.84
2	8.04	0.2	4.5	1.65	0.01	1.64	51.3	6.5	-44.8	0.13	None	0.82	0.78	24.5	0.2	<10	20	0.46	0.74	0.35
3	6.96	<0.2	<4.5	8.65	0.04	8.61	269.1	2.6	-266.5	0.01	None	0.86	0.4	166	0.2	<10	30	0.22	1.27	0.15
4	5.37	<0.2	<4.5	16.1	0.03	16.07	502.2	-0.1	-502.3	0.00	None	0.93	0.43	117	0.2	<10	20	0.19	2.01	0.23
5	8.82	0.3	6.8	0.92	<0.01	0.92	28.8	12.3	-16.5	0.43	None	0.43	1.32	88.7	<0.2	<10	30	0.71	0.31	0.6
6	8.31	0.4	9.1	1.36	0.01	1.35	42.2	11.8	-30.4	0.28	None	0.91	1.31	17.6	<0.2	<10	20	0.44	0.31	0.57
7	7.89	0.2	4.5	6.02	0.01	6.01	187.8	8.1	-179.7	0.04	None	1.16	0.94	23.3	<0.2	<10	30	0.4	0.66	0.46
8	7.59	0.5	11.4	8.83	0.02	8.81	275.3	12.2	-263.1	0.04	None	1.54	1.01	14.5	0.2	<10	20	0.46	1.85	0.45
LOD	0.02	0.1	1	0.05	0.2	0.01	0.05	0.05	0.02	0.01	0.005	0.01	0.2	0.1	0.01	5	0.05	0.01	0.05	0.2
1	13.8	3.4	35	2.01	1300	1.03	1.72	<0.05	0.03	0.02	0.015	0.22	6.8	4.8	0.17	168	267	0.02	<0.05	3.3
2	12.5	9.2	31	3.04	2640	2.33	2.78	0.07	0.07	0.01	0.034	0.32	5.8	6.2	0.3	105	163.5	0.02	0.29	6.4
3	4.23	24.9	17	0.45	680	7.86	1.06	0.14	0.02	0.02	0.085	0.23	1.9	0.9	0.05	27	12.85	0.01	0.06	9.3
4	4.46	108	28	0.36	639	13.25	1.07	0.3	0.02	0.03	0.01	0.23	2.2	1.4	0.05	23	17.5	0.01	0.1	21.1
5	16.75	9.3	61	4.16	975	2.41	5.91	0.07	0.03	0.03	0.012	0.6	7.7	23.8	0.9	241	197.5	0.01	0.09	27.6
6	19.5	10.8	62	2.8	1125	2.98	5.94	0.08	0.02	0.02	0.015	0.44	8.9	14.3	0.9	390	219	0.01	0.06	28.9
7	19.1	47.8	34	2.51	3090	5.78	2.44	0.14	0.03	0.01	0.026	0.42	9	8.8	0.45	128	20	0.01	<0.05	48.9
8	8.36	16.9	47	0.68	288	8.67	2.7	0.15	0.06	0.06	0.032	0.21	3.8	5.4	0.7	636	1.98	<0.01	<0.05	38.6
LOD	0.2	0.1	0.001	0.01	0.05	0.1	0.2	0.2	0.01	0.01	0.005	0.2	0.005	0.02	0.05	1	0.05	0.05	2	0.5
1	13	8.6	0.591	0.69	0.45	1.8	3.2	0.2	113	<0.01	0.22	1.6	<0.005	0.21	0.28	17	0.17	8.6	51	0.9
2	5.8	13.3	0.199	1.85	0.61	2.3	6.1	0.3	61.3	<0.01	0.32	1.8	0.031	0.21	0.27	46	0.86	5.97	89	1.6
3	9.6	7	0.145	8.7	0.53	1.1	15.3	0.5	102.5	<0.01	1.91	0.4	<0.005	0.38	0.32	8	0.62	1.59	25	1
4	5.2	7.9	0.032	>10.0	4.15	1.7	37.2	0.4	24.6	<0.01	1.97	0.5	<0.005	0.29	0.38	12	1	3.44	49	0.6
5	8.3	39.8	0.24	1.05	1.44	9.8	2.4	0.5	65.9	<0.01	0.3	2.2	0.088	2.25	0.51	104	1.16	10.25	48	0.7
6	7	26.3	0.265	1.45	0.39	8	3.3	0.3	55.6	<0.01	0.36	2.3	0.037	0.38	0.31	122	0.32	10.7	56	0.5
7	9	22.1	0.025	5.94	0.27	2.8	15.8	0.3	57	<0.01	1.16	1.9	0.007	0.73	0.35	36	2.29	11.25	101	0.7
8	61.6	7.7	0.003	9.63	0.17	4.9	11.6	0.3	20.5	<0.01	2.38	1.1	0.005	0.3	0.48	37	0.48	4.28	643	1.9

Notes:

a. For chemical abbreviations see Appendix D of this environmental baseline document.

b. Samples are composites.

kg CaCO₃/t = kilograms calcium carbonate per metric ton.

LOD = limit of detection.

mg/kg = milligram(s) per kilogram .

N/A = not applicable.

NP/AP = neutralization potential/acid potential.

S% = percent sulfur by weight.

TABLE 11-[SEQ FIGURE * ARABIC]

Results from Shake-flask Extraction Tests on Stored Bag Materials after 1, 2, and 4 Weeks—Pre-Tertiary Samples, Pebble East Zone^a

Sample ID ^b	Type Rock ^c	pH	Redox (mV)	Conduc-tivity ($\mu\text{S}/\text{cm}$)	Acidity to pH 4.5 (mg CaCO ₃ /L)	Total Acidity (to pH 8.3) (mg CaCO ₃ /L)	Alkalinity (mg CaCO ₃ /L)	Cl (mg/L)	F (mg/L)	SO ₄ (mg/L)	Hardness CaCO ₃ (mg/L)	AI (mg/L)	Sb (mg/L)	As (mg/L)	Ba (mg/L)	Be (mg/L)	Bi (mg/L)	B (mg/L)	Cd (mg/L)	Ca (mg/L)	
Method:																					
1	G	Week 1	7.8	270	250	1	3.1	58	1.3	0.48	60	34	0.072	0.003	0.0057	0.0029	0.0002	0.0005	0.069	0.000066	13
1	G	Week 2	7.8	280	230	1	3.1	62	1.3	0.41	53	34	0.17	0.0016	0.0043	0.0028	0.0002	0.0005	0.048	0.00005	12
1	G	Week 4	7.6	420	230	1	4	64	1.2	0.35	45	33	0.45	0.0015	0.004	0.0041	0.0002	0.0005	0.047	0.00005	12
2	G	Week 1	7.7	290	170	1	3.3	34	0.88	0.19	45	37	0.059	0.0022	0.0014	0.003	0.0002	0.0005	0.026	0.000065	13
2	G	Week 2	7.7	310	220	1	3	33	1.1	0.23	65	46	0.21	0.0011	0.00057	0.0037	0.0002	0.0005	0.016	0.000061	16
2	G	Week 4	7.7	410	180	1	3	33	0.95	0.18	48	35	0.17	0.00094	0.00043	0.0029	0.0002	0.0005	0.017	0.00005	12
2	G	Week 1	7.7	280	190	1	3.1	35	0.86	0.22	50	45	0.072	0.0029	0.0014	0.0037	0.0002	0.0005	0.021	0.00005	16
2 duplicate	G	Week 2	7.6	290	160	1	2.9	28	0.77	0.17	44	34	0.62	0.0012	0.00053	0.0043	0.0002	0.0005	0.014	0.00005	12
2	G	Week 4	7.8	410	190	1	2.9	35	0.94	0.19	51	44	0.089	0.0015	0.00078	0.0036	0.0002	0.0005	0.018	0.00005	15
3	G	Week 1	4.1	430	230	7.3	52	1	0.5	0.11	85	27	1.2	0.00025	0.0034	0.027	0.0022	0.0025	0.05	0.044	8.4
3	G	Week 2	4.1	450	260	5.7	56	1	0.5	0.13	110	36	1.4	0.00025	0.0042	0.029	0.0026	0.0025	0.05	0.057	11
3	G	Week 4	4.5	480	240	2.4	42	1	0.5	0.094	100	49	0.76	0.00025	0.00092	0.028	0.0017	0.0025	0.05	0.035	16
4	G	Week 1	4.8	360	340	0.05	30	1	0	0	150	140	1.1	0.0017	0.0002	0.0088	0.0062	0.001	0.02	0.0096	52
4	G	Week 2	3.6	480	360	20	71	1	0.71	0.44	130	57	2	0.0037	0.0093	0.012	0.0092	0.001	0.02	0.008	20
4	G	Week 4	4	470	370	8.9	66	1	1	0.62	160	110	2.6	0.0027	0.0012	0.013	0.0095	0.001	0.02	0.0071	39
5	Y	Week 1	7.8	270	120	1	3.6	49	1.8	0.15	11	30	0.13	0.002	0.0056	0.0028	0.0002	0.0005	0.012	0.00005	12
5	Y	Week 2	7.6	310	120	1	3.3	47	1.7	0.12	11	34	0.08	0.0019	0.0033	0.0027	0.0002	0.0005	0.013	0.00005	13
5	Y	Week 4	7.6	260	120	1	4	46	1.8	0.11	11	31	0.11	0.0016	0.0026	0.0034	0.0002	0.0005	0.014	0.00005	12
6	Y	Week 1	7.8	390	220	1	4.8	39	0.96	0.077	66	65	0.036	0.001	0.00049	0.0027	0.0002	0.0005	0.019	0.000068	22
6	Y	Week 2	7.8	320	290	1	3.2	48	1.2	0.13	91	99	0.022	0.00094	0.00048	0.0039	0.0002	0.0005	0.019	0.000075	35
6	Y	Week 4	7.8	330	270	1	4.2	44	1.2	0.12	84	94	0.028	0.001	0.00046	0.0034	0.0002	0.0005	0.014	0.000056	33
6	Y	Week 1	7.6	400	230	1	4.5	42	1.1	0.13	68	74	0.049	0.0013	0.00077	0.0026	0.0002	0.0005	0.02	0.000072	26
6 duplicate	Y	Week 2	7.8	320	300	1	3.1	50	1	0.13	93	97	0.022	0.00096	0.00043	0.0038	0.0002	0.0005	0.015	0.000093	34
6	Y	Week 4	7.6	350	320	1	5.1	45	1	0.12	110	110	0.021	0.00091	0.00033	0.0038	0.0002	0.0005	0.019	0.0001	39
7	Y	Week 1	7.7	390	190	1	4.6	25	0.5	0.19	59	44	0.047	0.001	0.0008	0.0031	0.0002	0.0005	0.011	0.00005	15
7	Y	Week 2	7.6	450	210	1	2.6	24	0.5	0.2	74	53	0.018	0.00072	0.0003	0.0035	0.0002	0.0005	0.01	0.00005	18
7	Y	Week 4	7.3	380	210	1	3.8	23	0.5	0.17	71	53	0.14	0.00069	0.00039	0.004	0.0002	0.0005	0.01	0.00005	18
8	Y	Week 1	7.2	400	120	1	4.8	3.1	0.5	0.033	49	43	0.0076	0.000091	0.00011	0.005	0.0002	0.0005	0.01	0.0019	7
8	Y	Week 2	6.6	460	180	1	3.2	2.2	0.5	0.044	78	66	0.005	0.00011	0.0001	0.0082	0.0002	0.0005	0.01	0.003	14
8	Y	Week 4	6.9	400	250	1	4.4	5.6	0.5	0.061	110	96	0.0035	0.00015	0.0001	0.0089	0.0002	0.0005	0.01	0.0037	21

Sample ID ^b	Rock Type ^c	Week	Cr (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Pb (mg/L)	Mg (mg/L)	Mn (mg/L)	Hg (mg/L)	Mo (mg/L)	Ni (mg/L)	K (mg/L)	Se (mg/L)	Si (mg/L)	Ag (mg/L)	Na (mg/L)	Tl (mg/L)	Sn (mg/L)	V (mg/L)	Zn (mg/L)
Method:			ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS										
1	G	Week 1	0.0005	0.0016	0.017	0.033	0.00005	0.69	0.035	0.00001	0.012	0.00094	4.6	0.016	1.6	0.000014	42	0.00005	0.0001	0.00099	0.0018
1	G	Week 2	0.0005	0.00046	0.0066	0.03	0.000059	0.68	0.038	0.00001	0.0077	0.0006	3.9	0.013	1.2	0.00001	38	0.00005	0.0001	0.0009	0.001
1	G	Week 4	0.0005	0.00038	0.0054	0.052	0.00013	0.63	0.037	0.00001	0.0091	0.0005	3.9	0.013	1.8	0.00001	37	0.00005	0.0001	0.0015	0.001
2	G	Week 1	0.0005	0.0011	0.019	0.03	0.00014	1.4	0.061	0.00001	0.0061	0.0011	5.3	0.0099	1.8	0.000011	25	0.00005	0.0001	0.0014	0.0088
2	G	Week 2	0.0005	0.0017	0.015	0.051	0.00017	1.7	0.079	0.00001	0.0053	0.0019	5.4	0.0086	1.7	0.00001	24	0.00005	0.0001	0.0017	0.0061
2	G	Week 4	0.0005	0.0012	0.014	0.03	0.00016	1.1	0.059	0.00001	0.0045	0.0014	4.3	0.0065	1.3	0.00001	20	0.00005	0.0001	0.0013	0.0049
2	G	Week 1	0.0005	0.0008	0.0087	0.03	0.00005	1.4	0.069	0.00001	0.018	0.00077	5.4	0.0092	1.9	0.00001	20	0.00005	0.0001	0.0023	0.0024
2 duplicate	G	Week 2	0.0005	0.0011	0.013	0.093	0.0002	1.1	0.055	0.00001	0.0039	0.00092	4.3	0.0072	2.1	0.00001	16	0.00005	0.0001	0.0044	0.0051
2	G	Week 4	0.0005	0.00064	0.0074	0.03	0.000071	1.3	0.066	0.00001	0.0077	0.0013	4.8	0.0073	1.2	0.00001	18	0.00005	0.0001	0.0014	0.0017
3	G	Week 1	0.0025	0.21	12	6.7	0.0047	1.4	0.058	0.00001	0.00025	0.046	4.9	0.005	1.1	0.00005	3.9	0.00066	0.0005	0.0025	0.32
3	G	Week 2	0.0025	0.23	14	6.4	0.005	1.8	0.078	0.00001	0.00025	0.054	5.8	0.005	0.94	0.00005	4.5	0.00083	0.0005	0.0025	0.5
3	G	Week 4	0.0025	0.24	13	3.7	0.0031	2.3	0.14	0.00001	0.00025	0.053	4.3	0.005	0.57	0.00005	3.9	0.00062	0.0005	0.0025	0.33
4	G	Week 1	0.001	0.085	6.7	1.8	0.00016	2.6	0.21	0.00001	0.0001	0.041	2.9	0.0036	0.59	0.000022	4	0.00014	0.0002	0.001	2.2
4	G	Week 2	0.0028	0.062	6.6	12	0.0014	2	0.15	0.00001	0.00015	0.033	2.2	0.0028	0.37	0.000027	4.1	0.00011	0.0002	0.0013	1.9
4	G	Week 4	0.0013	0.082	7.2	9.4	0.00072	2.3	0.31	0.00001	0.0001	0.045	2.4	0.003	0.51	0.000027	4.2	0.00012	0.0002	0.001	1.9
5	Y	Week 1	0.0005	0.0001	0.0028	0.03	0.00005	0.24	0.032	0.00001	0.011	0.0005	3.5	0.0031	1.3	0.00001	14	0.00005	0.0001	0.0044	0.001
5	Y	Week 2	0.0005	0.00013	0.0015	0.03	0.00005	0.25	0.04	0.00001	0.025	0.0005	2.9	0.0023	0.84	0.00001	12	0.000052	0.0001	0.0026	0.001
5	Y	Week 4	0.0005	0.00026	0.0048	0.03	0.00005	0.25	0.043	0.00001	0.014	0.0011	3.1	0.0027	0.91	0.00001	13	0.00005	0.0001	0.0023	0.0017
6	Y	Week 1	0.0005	0.0017	0.0057	0.03	0.00005	2.1	0.17	0.00001	0.006	0.0032	4.7	0.0017	1.2	0.00001	17	0.000067	0.0001	0.0005	0.0023
6	Y	Week 2	0.0005	0.0022	0.0076	0.03	0.00005	2.8	0.24	0.00001	0.01	0.0044	6.2	0.0017	1.2	0.00001	19	0.000083	0.0001	0.0005	0.0043
6	Y	Week 4	0.0005	0.0021	0.004	0.03	0.00005	2.6	0.21	0.00001	0.017	0.0038	5.7	0.0016	1	0.00001	17	0.00007	0.0001	0.0005	0.0022
6	Y	Week 1	0.0005	0.0011	0.0039	0.03	0.00005	2.2	0.16	0.00001	0.0088	0.0019	5.9	0.0018	1.5	0.00001	15	0.000069	0.0001	0.00078	0.001
6 duplicate	Y	Week 2	0.0005	0.0033	0.012	0.03	0.00005	2.8	0.25	0.00001	0.0094	0.0051	6.8	0.0018	1.1	0.00001	20	0.000081	0.0001	0.0005	0.0017
6	Y	Week 4	0.0005	0.0041	0.0071	0.03	0.00005	3.1	0.3	0.00001	0.0091	0.0082	7	0.0017	1.1	0.00001	19	0.000085	0.0001	0.0005	0.0038
7	Y	Week 1	0.0005	0.0014	0.013	0.03	0.00005	1.8	0.062	0.00001	0.00092	0.0043	4.8	0.0087	1.2	0.000029	17	0.000071	0.0001	0.0005	0.0042
7	Y	Week 2	0.0005	0.0017	0.017	0.03	0.00005	1.9	0.066	0.00001	0.00078	0.005	5.1	0.0083	0.98	0.000019	19	0.000075	0.0001	0.0005	0.0062
7	Y	Week 4	0.0005	0.0024	0.025	0.031	0.000088	1.9	0.078	0.00001	0.00075	0.0075	5.1	0.0074	1.2	0.000022	17	0.000076	0.0001	0.0005	0.0088
8	Y	Week 1	0.0005	0.0012	0.06	0.03	0.0067	6.3	0.44	0.00001	0.00005	0.01	2.5	0.0013	0.39	0.00001	2.1	0.000075	0.0001	0.0005	0.28
8	Y	Week 2	0.0005	0.0024	0.07	0.03	0.0055	7.9	0.62	0.00001	0.00005	0.014	3.7	0.0019	0.49	0.00001	2.5	0.000076	0.0001	0.0005	0.41
8	Y	Week 4	0.0005	0.0027	0.036	0.03	0.0038	11	0.91	0.00001	0.00005	0.016	5.8	0.003	0.65	0.00001	3.1	0.000098	0.0001	0.0005	0.34

Notes:

a. For chemical abbreviations see Appendix D of this environmental baseline document.

b. Samples are composites.

c. See Table 11-1.

ICP-MS = inductively coupled plasma-mass spectroscopy.

µg/L = microgram(s) per liter.

µS/cm = microSiemen(s) per centimeter.

mg CaCO₃/L = milligrams of calcium carbonate per liter.

mV = millivolts.

TABLE 11-[SEQ FIGURE * ARABIC]**Mineralogical Characterization of Barrel Test Subsamples—Pre-Tertiary, Pebble West Zone**

Sample ID	Rock Type ^b	Rinse pH	Quartz	Plag	Calcite	Clinoc	Musc	Results of Quantitative Phase Analysis (wt%) ^a											
								K-spar	Pyr	Sid	Biot	Kaol	Dol/Ank	Ortho	Clinoz	Mag	Act	Pyrr	Hem
ARLB003	G/D/N	7.37	10.3	40.4	2.6	6.7	5.3	21.4	4.2		2.1					1.6	5.3		
ARLB006	G/D/N	7.71	16.6	27.9	1.1	4.3	10.1	30.8	3.9	1.7	3.6								
ARLB001	Y	5.55	25.7	12.1	0.3		25.5	21.7	8.8		3.7	2.1							
ARLB002	Y	5.26	21.8	16.1			17.6	28.8	7.0		6.9	1.7							

Notes:

a. Results obtained through Rietveld X-ray diffraction analysis. Blank cells indicate that the mineral was not identified in that sample.

b. See Table 11-1.

Act = actinolite.

Clinoc = clinochlore.

Hem = hematite.

Musc = muscovite.

Pyrr = pyrrhotite.

Ank = ankerite.

Clinoz = clinozoisite.

K-spar = potassium feldspar.

Ortho = orthoclase.

Sid = siderite.

Biot = biotite.

Dol = dolomite.

Kaol = kaolinite.

Plag = plagioclase.

Cc = calcite.

Epist = epistilbite.

Mag = magnetite.

Pyr = pyrite.

TABLE 11-[SEQ FIGURE * ARABIC]**Particle Size Analysis of Barrel Test Subsamples—Pre-Tertiary, Pebble West Zone**

Sample ID	Rock Type ^a	Screen Assay Results—Percent Retained (by Particle Size)												
		1 inch	3/4 inch	1/2 inch	3/8 inch	1/4 inch	4.75 mm	2 mm	0.85 mm	0.425 mm	0.250 mm	0.150 mm	0.075 mm	-0.075 mm
ARLB003	G/D/N	45.1%	16.5%	19.1%	6.8%	5.9%	2.1%	2.3%	0.4%	0.6%	0.3%	0.1%	0.4%	0.4%
ARLB006	G/D/N	48.3%	17.7%	13.2%	5.0%	6.4%	2.5%	3.0%	0.8%	1.4%	0.6%	0.2%	0.6%	0.6%
ARLB001	Y	24.4%	12.4%	20.4%	11.9%	12.0%	6.2%	7.8%	1.2%	1.4%	0.5%	0.2%	0.8%	1.0%
ARLB002	Y	22.9%	25.3%	22.5%	10.2%	9.2%	3.9%	4.2%	0.5%	0.5%	0.2%	0.0%	0.3%	0.4%

a. See Table 11-1.

mm = millimeter(s).

TABLE 11-[SEQ FIGURE * ARABIC]**Acid-base Accounting Results for Barrel Test Subsamples in Two Particle-size Fractions—Pre-Tertiary, Pebble West Zone**

Sample ID	Rock Type ^a	Particle-size Fraction	Paste pH	S(T) %	S(S-2) %	C(T) %	CaCO ₃ NP	AP	NP	Net NP	NP/AP
ARLB003	G/D/N	+1/4 inch	8.40	3.67	3.67	0.34	25.0	114.7	22.6	-92.1	0.20
ARLB003	G/D/N	-1/4 inch	8.13	6.24	5.87	0.52	36.4	183.4	28.9	-154.5	0.16
ARLB006	G/D/N	+1/4 inch	8.58	1.95	1.88	0.53	40.9	58.8	28.1	-30.7	0.48
ARLB006	G/D/N	-1/4 inch	8.17	3.62	3.2	0.55	34.1	100.0	21.3	-78.7	0.21
ARLB001	Y	+1/4 inch	7.66	3.91	3.96	0.06	4.5	123.8	6.1	-117.7	0.05
ARLB001	Y	-1/4 inch	7.09	6.74	6.35	0.11	6.8	198.4	6.5	-191.9	0.03
ARLB002	Y	+1/4 inch	7.51	3.88	3.88	0.04	4.5	121.3	6.5	-114.8	0.05
ARLB002	Y	-1/4 inch	6.99	6.42	6.05	0.14	6.8	189.1	6.2	-182.9	0.03

a. See Table 11-1.

AP = acid potential.

NP = neutralization potential.

CaCO₃ = calcium carbonate.

S(S-2) % = percent sulfide sulfur by weight.

C(T) % = percent carbon by weight.

S(T) % = total sulfur percent by weight.

TABLE 11-[SEQ FIGURE * ARABIC]

Metal Assay Results by *Aqua Regia* Digestion with ICP-MS Finish for Barrel Test Samples in Two Particle-size Fractions—Pre-Tertiary, Pebble East and West Zones ^a

Sample ID	Rock Type ^b	Pebble Zone	Particle-size Fraction																		
				Ag (mg/kg)	Al (%)	As (mg/kg)	Au (mg/kg)	B (mg/kg)	Ba (mg/kg)	Be (mg/kg)	Bi (mg/kg)	Ca (%)	Cd (mg/kg)	Ce (mg/kg)	Co (mg/kg)	Cr (mg/kg)	Cs (mg/kg)	Cu (mg/kg)	Fe (%)	Ga (mg/kg)	
ARLB001	Y	West	+1/4 inch	0.35	1.33	11.4	<0.2	<10	50	0.46	0.23	0.27	0.1	15	17.4	91	2.17	551	4.53	4.24	
ARLB001	Y	West	-1/4 inch	0.68	1.5	30.8	<0.2	<10	40	0.56	0.5	0.37	0.24	14.35	29.4	99	2.33	922	6.42	5.21	
ARLB002	Y	West	+1/4 inch	0.44	1.44	20	<0.2	<10	40	0.45	0.52	0.27	0.07	11.15	19.8	104	1.77	791	4.55	4.8	
ARLB002	Y	West	-1/4 inch	1.4	1.38	48.2	<0.2	<10	30	0.5	0.94	0.29	0.45	13.45	24.8	110	1.63	1,075	5.98	4.88	
ARLB003	G/D/N	West	+1/4 inch	0.73	1.14	17.5	<0.2	<10	30	0.54	0.53	0.98	0.07	18.55	30.6	85	2.8	611	5.65	5.1	
ARLB003	G/D/N	West	-1/4 inch	0.88	1.45	57.6	0.3	<10	50	0.83	0.76	1.2	0.23	22.4	27.2	76	3.39	1090	7.35	5.44	
ARLB006	G/D/N	West	+1/4 inch	0.48	1.16	17.4	<0.2	<10	40	0.57	0.28	0.96	1.08	22.2	12.6	72	3.02	867	4.17	5.17	
ARLB006	G/D/N	West	-1/4 inch	1.27	1.56	35.7	<0.2	<10	60	0.76	0.75	0.99	0.16	27.7	23.5	70	3.17	873	5.91	6.07	
				Ge (mg/kg)	Hf (mg/kg)	Hg (mg/kg)	In (mg/kg)	K (%)	La (mg/kg)	Li (mg/kg)	Mg (%)	Mn (mg/kg)		Mo (mg/kg)	Na (%)	Nb (mg/kg)	Ni (mg/kg)	P (mg/kg)	Pb (mg/kg)	Rb (mg/kg)	Re (mg/kg)
ARLB001	Y	West	+1/4 inch	0.1	0.08	0.03	0.007	0.75	7	7.7	0.78	167	69.1	0.03	0.05	31.9	960	6.1	42.7	0.158	
ARLB001	Y	West	-1/4 inch	0.17	0.08	0.06	0.011	0.74	6.6	8.1	0.9	144	71.3	0.02	0.09	41.4	1,110	15	47.6	0.168	
ARLB002	Y	West	+1/4 inch	0.1	0.07	0.02	0.009	0.81	5	8	0.92	155	66.8	0.02	0.06	35	760	4.8	47.8	0.15	
ARLB002	Y	West	-1/4 inch	0.15	0.06	0.07	0.011	0.71	6.3	7.9	0.81	175	105.5	0.02	0.09	39.9	860	63.9	45.2	0.233	
ARLB003	G/D/N	West	+1/4 inch	0.13	0.09	0.01	0.023	0.52	8.9	5.6	0.79	354	50.4	0.03	0.19	14.4	1,150	8.1	29.2	0.094	
ARLB003	G/D/N	West	-1/4 inch	0.17	0.1	0.04	0.032	0.62	10.5	6.9	0.88	451	69.7	0.03	0.18	16.3	1,460	11.7	34	0.119	
ARLB006	G/D/N	East+West	+1/4 inch	0.11	0.07	<0.01	0.042	0.57	10.5	5.6	0.91	470	58.4	0.03	0.12	11.1	1,280	3.1	33.7	0.085	
ARLB006	G/D/N	East+West	-1/4 inch	0.15	0.12	0.04	0.044	0.51	12.9	7.6	0.84	390	48	0.04	0.1	13.7	1,360	13	28	0.058	
				S (%)	Sb (mg/kg)	Sc (mg/kg)	Se (mg/kg)	Sn (mg/kg)	Sr (mg/kg)	Ta (mg/kg)	Te (mg/kg)	Th (mg/kg)		Ti (%)	Tl (mg/kg)	U (mg/kg)	V (mg/kg)	W (mg/kg)	Y (mg/kg)	Zn (mg/kg)	Zr (mg/kg)
ARLB001	Y	West	+1/4 inch	4.18	0.65	7	8.2	0.4	22	<0.01	0.36	2.2	0.061	0.44	0.53	86	0.37	6.83	26	3.3	
ARLB001	Y	West	-1/4 inch	6.23	1.19	9.2	17.4	0.9	32.6	<0.01	0.63	2	0.067	0.59	0.78	105	1.04	9.95	45	2.8	
ARLB002	Y	West	+1/4 inch	4.09	1.63	8.3	8	0.4	19.4	<0.01	0.56	1.9	0.08	0.5	0.51	103	0.47	6.35	15	2.5	
ARLB002	Y	West	-1/4 inch	5.63	5.14	8.9	14.3	0.5	29.1	<0.01	0.74	1.9	0.071	0.55	0.77	108	2.03	7.63	74	2.4	
ARLB003	G/D/N	West	+1/4 inch	3.82	0.46	7.5	11.7	0.5	58.9	<0.01	0.51	1.6	0.069	0.38	0.69	108	0.7	9.81	35	2.6	
ARLB003	G/D/N	West	-1/4 inch	6.04	1.11	8.7	16	0.7	95.8	<0.01	0.87	1.8	0.06	0.81	0.92	100	1.35	13.1	90	2.8	
ARLB006	G/D/N	East+West	+1/4 inch	2.08	0.5	10.6	6.3	0.6	64.7	<0.01	0.18	1.8	0.064	0.39	0.59	114	0.63	10.3	169	1.9	
ARLB006	G/D/N	East+West	-1/4 inch	3.6	0.69	9.4	12	0.8	137	<0.01	0.67	2.8	0.028	0.56	1.02	106	2.18	11.85	68	3.9	

Notes:

a. For chemical abbreviations see Appendix D of this environmental baseline document.

b. See Table 11-1.

mg/kg = milligram(s) per kilogram.

TABLE 11-[SEQ FIGURE * ARABIC]
Summary of Mineralogy Results from Visual Observation of Tertiary Samples, Pebble East and West Zones

Sample ID	Rock Type ^b	Pyrite	Mineralogy Results (percent based on visual observation) ^a											
			Sulfides		Carbonates Carbonate	Oxides			Aluminosilicates					
Cpy	Other Sulfide		Hem	Mag		K-spar	Biot	Ser	Clay	Illite	Chl			
Pebble West Zone														
4292-415-430	TA/TD	2	tr	asp	5		tr			3			7	
3102-0958-0978	TB	2	tr		2		3	tr	3	15	1			
3102-0958-0978	TB	3	tr		2		3	tr	3	15	1			
3102-0958-0978	TB	4	tr		2		3	tr	3	15	1			
117-1055-1071	TB (low S)	tr	1	asp	10	tr	tr			tr	10			
4292-685-695	TC		tr	asp (2%)	20	5		tr				10		
3129-0253-0272	TC			asp	15	1	tr					10		
3129-0417-0435	TC		tr	asp, bor, chal	20	1						2		
115-0142-0163	TC (higher S)			asp	3	15		tr						
115-0054-0066	TC			asp (1%)	15	2		15	3					
115-0054-0066	TC			asp (1%)	15	2		15	3					
115-0054-0066	TC			asp (1%)	15	2		15	3					
4157-439-471	TF	3	tr	asp (2%)	20	3		3						
Pebble East Zone														
222788	TA	5	tr		5			30	15					
226785	TB	tr	tr		7	tr		tr		15	tr	20		
104472	TC	3	tr	asp, sphal	tr	tr?		tr		7	15	15	3 to 5	
220394	TC	tr	tr		15	5					5		20	
406558	TC	3	tr	gal, sphal	10	tr			20	2		15		
221502	TD	10			4	5	40			10		10		
104775	TD	tr			tr		tr	tr			tr	1		
219084	TF	tr	tr		10	1		tr			15		5	
406502	TF	tr			5	1					15		5	
219135	TW	1	tr		10		tr				25			
220366	TY	2			7	tr					15			
219189	TY	tr			10	15	tr				25			
220364	TY	tr	tr		5	3	tr			tr	15	1		

Notes:

a. Blank cells indicate that the mineral was not identified in that sample. Question mark (?) denotes uncertainty in identification.

b. See [REF_Ref249172114 \h].

asp = arsenophrite.

chal = chalcocite.

gal = galena.

Mag = magnetite.

Biot = biotite.

Cpy = chalcopyrite.

Hem = hematite.

Ser = sericite.

bor = bornite.

Chl = chlorite.

K-spar = potassium feldspar.

tr = trace.

TABLE 11-[SEQ FIGURE 1* ARABIC]
Summary of X-ray Diffraction Results—Tertiary Samples, Pebble East Zone

Sample ID	Rock Type ^b	Results of Quantitative Phase Analysis (wt%) ^a																	
		Sulfides				Sulfates			Carbonates		Oxides		Silicates and Aluminosilicates						
		Pyrite	Gypsum	Calcite	Siderite	Hematite	Quartz	Plagioclase	K-feldspar	Clinochlore	Muscovite	Muscovite Mg?	Biotite	Pyrophyllite	Kaolinite	Montmorillonite Model	Illite	Clinozoite	Titanite
222788	TA	5.3		3.4			33.8		11.4	7.4	31.2				7.4				
226785	TB	4.1		8.3	0.9		43.6	3.2		17.1	22.8								
104472	TC	1.1		2.4			19.8		41.6	4.6	13.4	17.159							
406558	TC	3.8		7.7			41.3	11.8		16.2	19.3								
220394	TC			10.9		3.9	18.9	31.2	2.4	20.8	11.9								
104775	TD						18.1	26.9	20.5	2.8	1.2			1.8	28.6				
221502	TD	3.9					16.7	45.7	21.8	5.3							3.6	3.1	
219084	TF			11	0.5	0.7	20.3	30.4		23.7	13.3								
406502	TF	0.2		3.7			32.5	31.9	12.8	8.1	10.8								
219135	TW	0.5		6.8	0.5		23.9	25.4	6.6	27.5			3.5						5.3
220364	TY			7			42.4	17.2		13.1	20.4								
219189	TY			3.3	8.3		24.6	15.1							8.5	40.2			
220366	TY	4.2	1.5	3.1			36	20.1		10.2	18							6.9	

Notes:

a. Results obtained through Rietveld X-ray diffraction analysis. Blank cells indicate that the mineral was not identified in that sample. Question mark (?) denotes uncertainty in identification.

b. See Table 11-1.

wt% = weight percent.